Industrial Finishing

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SAMPLES

IN THE 1932 MANNER

This year, instead of trying to work out new finishes from samples we send you, why not reverse the procedure? *You* send samples to *us*, and let our creative experts work out the finish. It'll cost you transportation charges only, for this studio service is free to manufacturers—*free*, although customers tell us its sales-making value is tremendous.

☆ *Of course, if you wish, we'll gladly send samples to you as heretofore. But we're confident that we can serve you far better if you do the sending. Suppose you try it.*

ROCKFORD VARNISH COMPANY

ROCKFORD, ILLINOIS

Kindly mention INDUSTRIAL FINISHING when writing advertisers

From the Editor's Desk

HIGHLIGHTS of a few of the things that passed over the editor's desk recently:

Faith, Hope . . . .

"Toward 1932 we turn with faith in our country and in our industry, with hope for business betterment in months ahead and with determination to press onward and upward to greater achievement in our new surroundings."

Insist on Profit

"There are two ways to go out of business—first, by selling merchandise at a loss, second, by not selling a sufficient volume of merchandise; there is only one way of staying in business, and that is by selling at a price which will show a profit. Only those firms which have the courage, in spite of general business conditions at present affecting all businesses, to take the third road can hope to survive."

Synthetic Resins' Future

"For several years the paint, varnish, lacquer and enamel industries have shown great interest in synthetic resins. Development of these resins and their uses has been retarded, however, because of the patent situation. Each of the three groups which have been responsible for the development of these resins are actively engaged in research in this field.

"It is now announced that the restraint upon the development of these synthetic resins on account of patents has been removed by a series of agreements. The purpose of these agreements is to make it possible for each group to pursue its technical and commercial development in this resin field with the assurance of immunity against prosecution of itself by its customers under patents that are at present owned or may shortly be obtained by the other groups."

Finish-Treated Paper

With so much cellophane and glassine being used by manufacturers to wrap and seal food, drug and tobacco products, more individuals and concerns are interested in learning about or developing materials or processes by which certain grades of thin paper can be made practically if not entirely as transparent as cellophane —and safe, odorless, tough and permanent.

Sales Move Up

The Department of Commerce's annual chart of paint, varnish and lacquer products sales shows that every year the chart line inclines sharply upward from the low point in mid-December, advancing upward through January, February, March and April, reaching the peak usually in May. These charts are made up from the reports of 588 manufacturing establishments, and include trade, industrial and unclassified sales.

K. H. Rohr

Managing Editor

Profits Ahoy!

Far-sighted industrial finishers know that profits today can be found largely in lowered production costs. Now, as never before, they demand that their spray-finishing equipment be not only dependable to stop costly interruptions, but that it be efficient to the highest possible degree. It is this efficiency and dependability in DeVilbiss Spray-finishing Equipment that is responsible for its acceptance by industrial finishers everywhere,—an efficiency and dependability which *you*, too, can rely upon to cut your costs and make profits.

The wide and comprehensive experience of DeVilbiss engineers in designing special automatic and semi-automatic equipment is available to meet any new and unusual finishing requirements in your plant.

For the sake of your Profit and Loss Statement, send for the DeVilbiss man whenever spray-finishing equipment is being considered. Or write.

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Toledo, Ohio

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Where to Cut
Finishing Costs

by E. T. MILLER

Practical suggestions about where to cut finishing costs —from a former foreman finisher who has been promoted into the estimating and production department of a showcase factory.

DO the present market prices on furniture and store fixtures come from the adjustment of manufacturing costs, or are they governed entirely by competition? Most every manufacturer is asking this question and trying to meet competition.

In order to get to lower prices we have to start at the beginning by designing cheaper construction, selecting cheaper finishing, and the most important part is going through each department and looking for sources of wastage in material, labor and time. Labor enters in as one of the biggest cost factors in manufacturing a piece of furniture.

The finishing department ranks first in the thoughts of management after newly created designs have been decided upon.

The foreman finisher is consulted first as to the type of finish, the color, and the time required for completing the job. The management usually abides by the foreman's recommendations, and has enough faith in him to believe he and his crew can produce a finish that will place the company's goods on the market at a specified selling price.

Previous experience tells the foreman that the finishing can be accomplished in a certain length of time but today, with our present prices, we have to produce a finish that will meet a certain standard and still not involve a great amount of labor.

In the finishing department there must be a cut somewhere along the line. Material being somewhat cheaper, we have two other choices—labor and production. The amount of labor required to manufacture an article can either raise or lower the selling price. If an article formerly took three hours to finish, the time must be cut. That means there has to be a saving of time in every operation from the staining to the rubbing.

It is up to the foreman or the supervisors of these departments to help in the saving of time that has to be made. If you are a finishing foreman, ask yourself a few of these questions:

Are your men handling the work right? Can you find another way to produce quicker results?

Can you gain any time by handling two or more pieces at a time instead of one? Can you eliminate the filling operation on certain articles by applying a second coat of stain? By using some of the new primers that are on the market, can you eliminate sanding? Can your spray operator cover a larger surface in less time by using a wider spraying adjustment on the gun?

In the rubbing department, can you gain any time or cut the labor cost by having boys at a cheaper wage do all the cleaning—thus leaving the rubbing alone to the higher priced men?

These are a few of the questions that are confronting most of us during this present conflict for business.

An Example in Sanding

As an example we find in the sanding department two men sanding table tops; one man can sand 14 table tops in one hour, while the other man can only sand 10 tops in 54 minutes. Watching these two men we find that the man sanding the 10 tops will walk from 6 to 8-ft. to spit, while the other man has his bucket beside his bench. By the end of a 9-hour day the 10-top man, being more tired from continual walking back and forth, is not able to even keep his average of 10 tops, while the 14-top man has only dropped one.

You will find circumstances such as this in every department, and by watching these small loop holes you can show a considerable gain in time which will result in a lower cost of finishing.

Another possible saving of time is the filling operation when birch wood is used. This wood takes a wonderful finish when not filled, but where lacquer is used, it requires at least three coats to produce a good rubbed finish. The extra coats of lacquer are not as costly as the filling operation, and will not require any more rubbing if the lacquer is properly applied.

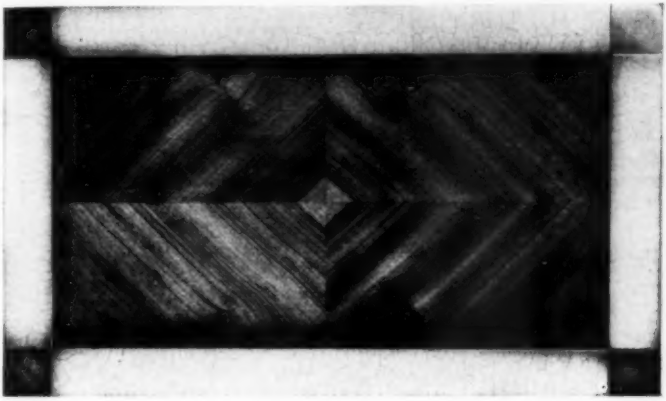
We can eliminate some sanding time by using oil instead of water stains, but we find the oil stains are not as fast colors as the water, and we hesitate to some extent about using oils except on cheaper grades of work that take the flat finishes.

We can still find another saving of time in the spraying department, and that is in the spray gun itself. Are your guns in perfect condition, or does the operator have to stop every hour or so to make adjustments?

If the guns are not clean and have worn parts, the operator cannot get results and will have trouble getting a good sprayed surface. He will be constantly adjusting his gun as the worn parts will not permit it to operate accurately. These guns should be inspected at regular intervals and all bad or worn parts replaced to assure good fast clean work and the saving of material.

The handling of pieces to be sprayed at the booth can involve a great deal of time if not handled properly. Where you have pieces that are all sizes and shapes, it is rather a matter of judgment on the part of the operator as to how to make the best time. But where we have a number of pieces alike there should be a system or plan worked out that will eliminate excessive handling.

It is in the solving of these little problems that will help to bring down the cost of finishing and help to hold the price of labor on its present scale. Look into your departments and find the leaks that can be remedied and watch the results.



Modern Finishes

by ED. H. BUCY*

A NUMBER of novel finishes have been introduced, and in some cases perfected, during the last ten years. One is the crackle finish of the conventional type which is rather widely used and which has a great many possibilities for certain types of work. Its use is spreading for some of the more utilitarian lines of work—for instance, machinery, wall finishing, air filters, certain types of display racks and various kinds of modern furniture.

The new "Period" or "Mosaic" finish illustrated above adds a pleasing decorative touch to the conservative effects which are becoming popular again for furniture and other products in wood and metal.

Another finish is the air-dry crystal, which has wide possibilities for both wood and metal. When used on wood, an air-dry undercoat in color is used, over which the clear crystal is applied.

For metal, it may be had in a one-coat pigmented finish, or a two-coat finish, consisting of the undercoat of color which is baked on, and a top coat of the clear crystal. This is an unusally attractive and durable finish.

Toning in colors or bronze powders may be added to these finishes if one desires to do so.

*With Brevolite Lacquer Co., North Chicago, Ill.

The general trend of product design and finish is toward simplicity. Some of the new clocks being introduced are in the rich combination of ebony black and chromium, and some of the better grades of novelty furniture are coming out in solid tints with metallic trim. Household furniture, which was so bright in colors several years ago—red and vivid green—is now coming back to the wood grain finishes.

There is a demand for some additional touch to put "punch" into these more conservative effects. This additional touch is best had in the finish itself and must, of course, fit into the general idea from the viewpoint of the buyer, and must also fit into the manufacturer's finishing schedule. Just such a finish is the new "Period" or "Mosaic" finish, illustrated in the accompanying cut.

When used over wood grain, this is either a three or four-coat finish. However, there is no rubbing or sanding, although there is a glazing operation. The effect obtained is that of an antique or checked design.

The background color may be anything from Early American maple to a fairly deep walnut or mahogany, and the effect is equally pleasing. The check size may be regulated by following the instructions of the manufacturer. Shading or two-tone stain work makes the finish show up to even better advantage.

One of the great advantages of this finish is that it may be used over colors. When used in this way with no wood grain showing, it is called "Mosaic" because it looks very much like the checked tile or porcelain and Chinese pottery. By working in a colored panel, using the natural wood grain for the remainder of the piece and applying the "Period" finish over the entire article, a very beautiful combination of Period and Mosaic is obtained.

This finish is already being used on clocks, furniture, screens, lamp shades, pottery, various mechanical articles and several kitchen implements. The true effect is only indicated, but not fully shown, on the accompanying illustration.

EDITOR'S NOTE: The manufacturer of this material will be glad to send finished sample plates, or will finish up articles that may be sent to them, using any color combination that is selected, or using combinations which they find most appropriate.

Furniture Patcher's Furnace

The Bobbett Electric Mfg. Co., 4307 Cottage Grove Ave., Chicago, Ill. has ready for distribution a 4-section folder illustrating and describing the Bobbett "Heat-A-Knife," an electrically-heated furniture patcher's furnace.

P. L. Maury Heads Arco Co.

The Arco Co., manufacturers of paints, varnishes, enamels, and lacquers, with general offices at Cleveland, Ohio, and plants in Cleveland, Los Angeles, and Toronto, announces the appointment of Mr. Philip L. Maury as President—Mr. S. D. Wise, former President and Mr. S. D. Weil, former Vice President, retiring.

The new President, Mr. Philip L. Maury, has had long experience in the paint industry. He formerly lived in Cleveland when he was connected with the Sherwin-Williams Co., as Manager of General Industrial Railway and Marine Sales. He left Cleveland to become Vice President and General Sales Manager of the Detroit Graphite Co. at Detroit, and continued in that capacity until the company merged with Valentine & Co. when he became Vice President of that concern at New York.

Mr. Maury resigned from Valentine & Co. November 30, to take up his new duties with the Arco Co., December 1.

Finishing Decorative Furniture - II

by JOS. A. MAIER

Foreman Finisher of J. L. Strassel Co., Louisville, Ky., decorators and manufacturers of special furniture, describes the methods of finishing and antiquing a splendid 15th Century reproduction in which ivory intarsia predominates.

IT has been said of the Renaissance Period of the 15th and 16th Centuries, that it was the golden age of achievement. Many masterpieces of furniture, inspired by the ancient art of the Orient, found their origin during this period. The Italian masters of the art of intarsia produced many rare and beautiful specimens which have endured throughout all of the ensuing centuries. An example of this art is represented in the reproduction of a 15th Century sideboard shown above. American walnut in both solid and plywood is used throughout with ebony center panels in the doors and drawer fronts, the intarsia being ivory.

It has also been said with a great deal of truth, that while most of the furniture of the Renaissance is worthy of all of the praise bestowed upon it, much of it is far more appropriate for display in museums than for practical use in modern homes. Its very size, massiveness and the ornate

character of the intarsia decorations lend credence to this statement. Size or massiveness can be eliminated as an objection, however, through the pretentiousness of the home in which the furniture is used.

Furniture, representing true reproductions, demands all of the elaborate and often profuse ornamentation. It is one thing to visit a museum, to view and admire an ostentatious masterpiece of bygone years, and quite another to live each day with an authentic reproduction of that piece of furniture. Constant association with furniture demands a measure of uniformity in color tones and avoidance of glaring contrasts such as produced by ivory intarsia on ebony and other dark colored woods. It is the elimination of this contrast that I wish to emphasize.

Color of the ivory inlay must always be under our control, so our first operation is to protect all of the ivory with a coat of white shellac. Then follows the first step toward eliminating the contrast between ivory and walnut. A coat of light yellow alcohol stain is applied to all of the walnut in the entire piece. This has a tendency to lighten the natural color of the walnut to tone in with the ivory.

This particular piece is not filled. Open pores produce a more antique and worn effect.

Shading; Shellac; Lacquer

Next comes the delicate operation of shading all of the ivory inlay with the exception of that in the drawer fronts and the three center panels in the doors which have an ebony field. Raw umber and alcohol are used for shading. Of course, the alcohol attacks the previous coat of white shellac, permitting the raw umber to get to the ivory. Shading is wiped off to obtain a correct balance of color contrast between the ivory and walnut. Touching up and the intricate shading around the female figure in the posts completes this operation.

The ivory-inlaid ebony panels in drawer fronts and doors are given a thin coat of white shellac as a foundation coat. This treatment preserves the sharp contrast between ivory and ebony in these comparatively small areas, and produces an attractive and welcome contrast with the subdued intarsia of the rest of the front.

Then follows a coat of lacquer undercoater and a coat of clear flat lacquer. About two hours drying time is allowed between coats, and from four to six hours after the final coat. All flat surfaces are lightly rubbed with pumice and oil.

Antiquing

Again, as in last month's article, we have brought the finish to a successful conclusion, but at that the top, end panels and mouldings have a certain freshness of appearance that must be dissipated. This is accomplished by brushing a coat of antiquing on these surfaces. As described in the previous article, this material is composed of dry white lead, raw umber, drop black, liquid wax and turpentine. Of course, the quantity of color materials are varied to suit the particular work in hand. The antiquing is wiped off carefully so that the resulting finish, like the design itself, produces an atmosphere of other ages, with astonishingly fine and permanent results.

EDITOR'S NOTE: The sideboard illustrated on page 11, we understand, sold for the sum of $1500.

Facts about
Pearl Essence Lacquers

by H. E. MATTIN

THE PEARL ESSENCE used in certain decorative finishing materials is a product obtained from fish scales. For ages these scales had been discarded, being considered a nuisance until Jos. H. Meyer Bros., cut off by the war from their supply of pearl essence, founded the industry in America, and turned a nuisance into a rather tidy source of income for fishermen along the North American coastline—for example, at such fishing stations as Eastport, and Lubec, Maine, Reedville, Va.; Grand Manan, N. B.; and Vancouver, B. C.

"An article I wrote up in response to a lot of questions as to how Pearl Essence is really made."

The herring are caught in nets and poured into the bottoms of dorys where they present a beautiful sight—an iridescent cascade of shimmering fish. There they lie flapping and flopping in the sunlight, casting off a luster and color that no artist could successfully reproduce. It is just too magnificent; jewels pouring from a fabled treasure chest. In this lively struggle the fish begin to lose their scales, and it is these scales (wonderful for their iridescence) which, if immediately gathered and processed, make the finest quality of real pearl essence.

The fish, dory load after dory load making hundreds of hogsheads of fish, are transferred to the fishing boats. Here they again lose more of their scales; also of good quality and these are gathered and brought in.

The boats when loaded set out for the canneries. The latter, picturesquely built out into the water, have a sluiceway leading directly from the wharf to the pickling tank. The boat loads of fish are washed down the sluiceway into the brined tanks. The scales disengaged by the washing are drawn off through slatted bottoms, the water meanwhile having been strained off. These scales unfortunately have come into contact with the pickling solution which exerts a corrosive action on the crystal imbedded in the fleshy part of the scale and the result is a slightly inferior quality of pearl essence.

Sometimes the fish are caught out at sea and do not come in for several days. They are kept sterile in salt water. This results in a poor grade of essence and the practice of selling this quality

has caused pearl essence to fall into disrepute with some users.

The popular idea is that pearl essence is ground "fish scale." Such, however, is far from being the fact. Just underneath the scale, in a membranous layer of fat, is a tiny crystal called by its chemical name of "guanin." It is from this crystal of guanin that pearl essence is made, and not from the scale proper. The processing and handling of this delicate piece of organic matter requires dexterity and experience that has been extremely costly to acquire, and the gradual improvement in the product and the lowering in price has been reflected by this accumulated experience.

Today pearl essence is made under careful control, chemically supervised, and its manufacture has come to be an art and an exact process, and as far removed from the original pioneering efforts as any other basic industry in the country.

The scales arriving at the essence plant are hauled ashore, very quickly weighed and churned to separate the fatty matter and crystalline guanin from the scale body. Next the crystal is strained away from the scale, warmed in water, with chemicals added, and gradually by proper chemical operation separated from the fat layers surrounding it. It is then centrifuged to remove the water and soluble matter. The process is repeated several times, until the crystal is deemed sufficiently clean and fat free for further processing.

Pearl Essence is not ground "fish scale"; it is from tiny crystals of "guanin" obtained from the membranous layer of fat just underneath the fish scales. Today Pearl Essence is made under careful control, chemically supervised, and its manufacture is an art, an exact process.

It is then given an alkaline bath; next very carefully freed of any absorbed chemicals and products susceptible to decomposition, by prolonged washing.

Being now free of all adhering matter and practically chemically pure guanin, it is incorporated into lacquer, graded, standardized and bottled ready for the market that uses it.

Its market uses, formerly confined to the manufacture of imitation pearls and mother-of-pearl effects, has now entered practically every field that its lacquer vehicle is embellishing. For it is now recognized that the crystal of pearl essence gives such depth of color and beauty of effect that formerly could only be achieved by individual artistry; and in addition new creations are obtained that were once strictly confined to nature's own handiwork.

The manufacturers' slogan, "where beauty is desired pearl essence will make it more so," is, I believe, very well taken. Automobile manufacturers have become interested in the pearl essence finish and as a result it is being used on some of the new models now on exhibition at 1932 automobile shows. It provides a new and unusual decorative feature which automobile people believe will be effective in creating a favorable influence upon prospective buyers.

Today spray-painting equipment must be not only dependable and efficient, but it must also fit exactly the type of work to be done.

Painting and Finishing

Railway Rolling Stock

by E. PERRY

FACED with the problem of providing adequate facilities to maintain a schedule during all seasons of the year, it was then determined to make a careful and thorough investigation of all the ventilating systems which might be adapted to their situation as a progressive manufacturer of car equipment. A committee consisting of the manager, superintendent, plant engineer, and the paint foreman collaborated in studying from a practical viewpoint all installations thus far developed. They found that there were three types of ventilating systems available for observation—the tunnel or permanent booth, the stationary frame canopy, and the portable canopy. For the purpose of this article I will review these briefly.

The tunnel or permanent booth provides coverage for the whole car frame body, and therefore must conform to the unit length of a passenger car. Above each booth are stacks equipped with huge siphon fans for exhausting the fumes.

The stationary frame canopy is placed at a height which permits of the movement of car frames under it, and has in conjunction with it a tunnel built into the shop floor running parallel to the car. Air is forced through the tunnel, where it is in turn sucked out by forced ventilation in the canopy hood.

The portable canopy, as its name implies, has an adjustable feature allowing it to be raised or lowered at will to conform to the particular spray operation being performed.

None of these three types had incorporated pre-heated air, and this was regarded as a prime essential to an economical wintertime ventilating installation. Middle West temperatures frequently drop to the zero degree Fahrenheit, and the plant engineer of the Pullman Co. designed the adopted layout to compensate for this degree of coldness outside. Previous practical experience had demonstrated that a forced draft equivalent to moderate outdoor ventilation would be sufficient to maintain favorable working conditions within the shop. Having in mind these fundamentals, the engineer modeled the present layout of their spray shop, as shown in the accompanying floor plan.

Two sections of a centralized shop having stall capacity for six and four cars respectively were selected. For the purpose of this article the following description shall be confined to the smaller section. The location provided

has bricked-in walls extending from the floor to the roof, with large swinging doors at each end to allow for the entrance and exit of cars from the transfer tables.

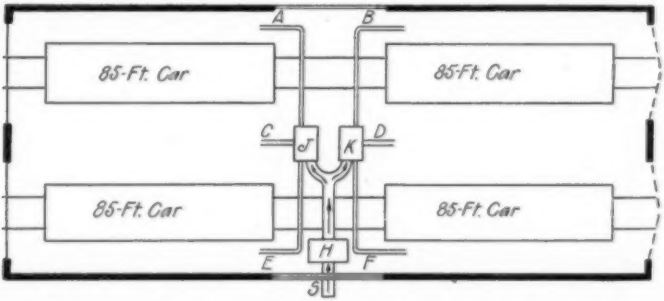
Booth Ventilation

The diagram shows the approximate layout of the apparatus in conjunction with the ventilating system. Motors and accessory equipment are suspended from the roof. Fresh air is drawn in from the outside through a 30-in. intake; this air is then passed through enclosed unit-type finpipe copper tubing heaters suspended from the shop ceiling. The pre-heated air is then transmitted by the aid of two 7½-h. p. motor-driven low-pressure Sirocco blowers through ducts into a heated exhaust system. The discharge is through large galvanized ducts ranging in diameter from 12 to 24-in., running parallel to each side of the car frames with a horizontal discharge at the end.

The fumes rise naturally with the pre-heated air. At 20°F. outside temperature, the cold air taken in will be raised to 120°F. at the discharge points. At 0°F. outside temperature the air at the discharge points will be 90°F. In general, the velocity of the air at these outlet points ranges from 2500 to 3200-ft. per minute, tapering off as the far end of the car is reached. The warm air from the forced horizontal discharge tends to cause the fumes to rise to the extreme ends of the shop where built-in louvres over the doors assist in the natural expulsion of the vapors.

The horizontal draft gives a complete change of air per car length four times per minute, assuring a constantly fresh air supply parallel to the car side. The volume of air per car per minute is equivalent to 10,000-cu. ft., or a total of 40,000-ft. per 4-car section. Over a nine-months period of daily operations, no accumulation of paint residue can be found within the shop.

To those who are interested in shop maintenance, the economies of the foregoing-described installation will immediately commend



Plan of 4-car spray room equipped with heating-ventilating system wherein S is fresh air intake, H is heater, J and K are blowers, and A, B, C, D, E and F are discharge pipes. A, B, E and F are 12-in. pipes, the velocity of air from the respective pipes being 2700, 2500, 2600 and 2500-ft. per minute. Pipe C is 18-in. in diameter, air velocity 3200-ft. per minute; pipe D is 24-in., air velocity 2300-ft. per minute.

it. Separate switches are provided so that the ventilating system can be operated independently for each stall, with a consequent saving in power. The extra cost required to heat this 4-car section at 0°F. outside temperature is 80c per hour; at 30° F. outside temperature, 50c per hour; at 50° F., 30c per hour. During a very severe winter spell, when the official readings fell well below zero temperature, this section—because of its forced draft of hot air—was even more comfortable than the newer shops.

Room for Working

These tunnel-type spray booths are especially designed to provide just enough room around the car or locomotive to allow freedom of the workmen. They are completely enclosed with the exception of an air intake space of approximately 9-in. between the booth walls and floor. The walls of the booth are fitted with glass panels through which strong lights, located outside the spray booth, provide ample illumination for the workmen inside. The ends of these tunnel-type booths are equipped with power-driven rolling steel doors which are closed after the car enters. A small service door is provided at each corner of the booth for possible emergency exit.

Suction is maintained by six or eight (depending on the size of the booth) venturi exhaust stacks, each capable of exhausting 600% more air through the stack than actually passes through the fan. This is accomplished by co-ordination of a high-pressure jet in the venturi throat of the exhaust stack. The air from the fan, discharged through the high pressure jet, creates a tremendous vacuum in the stack below the venturi throat. In this arrangement the fan and motor are located outside the line of exhaust, and usually outside of the building entirely.

When fans and motors are located inside of the building, air for the fans is induced from the outside through a duct to each fan, in order that heat losses in the building may be minimized as far as possible. The lacquer-laden exhaust fumes never come in contact with the fan or motor—a feature that eliminates any possibility of fire or explosion from the motor sparks or fan friction, and also assures 100% fan efficiency at all times.

In installations of this type, workmen can operate any number of spray guns on both sides of a car at the same time, the suction draft being so arranged that the operators breathe clean fresh air while working inside the booth.

(To be continued)

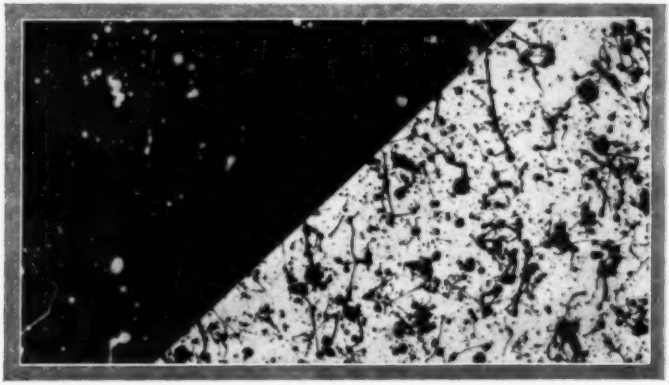
International Paint Corp. Changes Name

The International Paint Corp., of East St. Louis, Ill., and Baltimore, Md., announces:

"Our Baltimore plant was opened in the latter part of 1927 with the intent of building up our sales in the marine trade in addition to our standard industrial line.

"Since 1927, we have become very active in the marine field and several months ago the International Compositions Co. called our attention to the fact that they have, through trade-mark registration, exclusive right to the use of the word "International" as applied to marine paint or paint products.

"We have been incorporated as International Paint Corporation for the past ten years and we dislike very much to make a change after such a long period of time. However solely for the above reason, we have decided to change our corporate name to "Inter-Coastal Paint Corporation" effective January 1, 1932. We will of course, continue to market our products under the same brands as we have heretofore used and the change in name involves no change in personnel or policy."



Veiling and Spatter Lacquers

by L. B. MILLER

SOME time ago lacquers came on the market which were known as veiling, stipple, or spatter. These lacquers were very viscous or heavy in body and had to be applied by means of a special pressure-type air gun. By that I mean that in order to cause the lacquers to reach the nozzle of the gun, pressure had to be applied to the cup which contained the lacquer.

The desired results were difficult to obtain as the pressure in the cup had to be minutely regulated. Then, when the spatter was spraying as desired, the nozzle would clog up and the operation would cease. This trouble, I believe, was the big drawback at that time—the reason why veiling lacquers did not become popular.

The new type of lacquer has none of the above mentioned drawbacks. With the new type, no pressure is needed in the cup, and it can be sprayed with any type of spray gun. Best results are obtained by cutting the air pressure down to 20 or 30-lbs. This lacquer appears in a clear transparent form of spraying consistency; however, it is not used in this form. To about 75% of it, 25% of a pigmented wood or metal or automobile lacquer is added. The mixture is then thoroughly stirred and placed in the cup of the air gun, and spraying is started. The size of the spatter may be regulated by the

distance between the nozzle and the object sprayed.

Attractive effects may be obtained by applying several spatters of different colors to the same object. I might add here that the object to be spattered should first have a ground coat of some solid-covering lacquer-enamel of the color desired applied to it.

Should a high luster or a dull finish be desired, it can be regulated to a large extent by the type of ground color lacquer-enamel used, but if not and also for better protection, the object after being spattered may be sprayed with a gloss or flat lacquer.

Marble effects may be obtained by adding dye solutions to the clear spatter lacquer, spraying these various colors on the object and then finishing off with a clear lacquer to which has been added a very small amount of white lacquer-enamel. This will allow the dye colors to bleed through somewhat.

Very interesting results may also be obtained by using a black background or ground color, mixing gold bronze powder with the clear spatter lacquer and applying this over it. This particular color scheme gives a very striking Japanese effect so much desired here on the West Coast. The amount of spatter applied also gives unbelievable contrasts.

These finishes are now being largely used out here (in California) on lighting fixtures, bath fixtures, hat racks, handles, candy boxes, desk sets, breakfast sets, and end tables.

Neospar—"The Wonder Finish"

The Sewall Paint & Varnish Co., Kansas City, Mo., has ready for distribution its 8½x11-in. illustrated circular describing the merits of its new product "Neospar"—a clear finish protective coating.

Pearl Essence Laboratory

Due to the tremendously increased interest in Richelieu Pearl Essence, the Freud Laboratory, 655 Sixth Ave., New York City, are enlarging their organization to specialize in furnishing consulting and research service to those who are interested in working out problems pertaining to the use of Pearl Essence on their products.

Largest Seaplane Refinished

The Sherwin-Williams Co., Cleveland, Ohio, submits the accompanying cut along with a letter to the effect that it is made from a recent photo of the world-famous Do-X being refinished with Sherwin-Williams aeronautical finish at the Glenn Curtis airport, North Beach, N. Y., the material having been supplied by the Curtis Wright Flying Service, distributors of Sherwin-Williams products.

The Do-X, built by Dr. Claude Dornier in Germany, is the world's largest seaplane. It carries 160 passengers, and is powered with 12 Curtiss Conqueror water-cooled engines of 600-h.p. each. The seaplane's wing span is 157-ft.; length 131-ft. 4-in.; weight empty 61,000-lbs.; weight fully loaded 105,000-lbs.; crew, usually 12; cruising speed, approximately 120-m.p.h.

Refinishing Fokker Aircraft

By G. L. HARDY

Final article in a series* describing the material and routine specifications included in cleaning, conditioning and finishing the metal, plywood and fabric surfaces of modern aircraft in service for Western Air Express and subsidiary air lines.

IN FINISHING the interior trim of aircraft, particular care must be exercised in the selection of fillers and stains and the routine in which it is handled.

Three different applications needed here. Combination stain and filler, sanding sealer, wood lacquer. This may be brought along at intervals when waiting for some other part of the ship to be prepared for paint.

Plywood walnut, mahogany, and gum are all expensive, but if the panels are badly scarred and gouged and the finish exceptionally alligatored, it is often far cheaper to put in new panels than it is to strip and build up the old ones, especially if there is much burning in or matching to be done.

If the best grades of these three mentioned woods are used a combination fast-dry filler-and-stain may be used with almost perfect satisfaction. A good judge or observing workman can easily tell the light panels that need a shading stain over the duplex stain and filler coat.

Water and spirit stains naturally make the most desirable effects, but where the cabin panels are hidden so much by the chairs, this is an unnecessary precaution that adds too much expense for an air transport line to incur. Extra attention should only be paid to the panels at the ends of the cabin by the cockpit and vestibule doors, as they are exceptionally well exposed to the passengers, view.

Final Detail and Touch-up

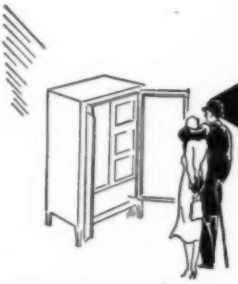
The cockpit should be one of the last things to paint as the workers are crawling in and out almost continuously until the very last minute. This may either be cut in by hand with brushing lacquer or it may be sprayed. If the spray is used, be careful to mask all guages and instruments. Repaint flare pulls and dump-valve pulls in bright red and label properly. Transfer letters are handy here if you have no sign painter in your crew.

Paint the cockpit window-frame structure, roof panels, control wheels and instrument panel in a dead black, so as to stop reflection and insure ease of reading the instruments at all times.

Keep the floors of the cockpit covered until time for the ship to go on its run.

* Previous articles on this subject appeared in December 1930, January, April and November 1931.

Introducing ZAPON



REFRIGERATOR LACQUER *Enamel* #5295

THE ZAPON COMPANY is the *only* company to have perfected a lacquer enamel of this type. Standing absolutely alone in its field, ZAPON REFRIGERATOR LACQUER ENAMEL #5295 represents an amazing improvement over present methods of refrigerator finishing. Grease-proof, sweat-resisting, durable; it has weathered every rigid laboratory test,* and — with its introduction — refrigerator finishing, as it is practiced today, will become hopelessly out-moded.

*We have prepared a chart showing the tests which a refrigerator lacquer enamel must pass. We will be glad to send you this chart.

ZAPON

Remember, the extensive facilities of our service laboratory are at your disposal free of charge. Let us help solve your finishing problems.

"The Standard of Quality Since 1884"

THE ZAPON COMPANY

A Subsidiary of Atlas Powder Company

Stamford **Connecticut**

Kindly mention INDUSTRIAL FINISHING when writing advertisers

The cat walk from the baggage compartment to the empennage (tail) may now be painted if all workmen are through in that end of the ship.

The exhaust stacks are ready for painting if the motor men are through with their greasy work. Wash off all grease and sandblast off all rust and paint if possible or carefully sandpaper off. A second coat may be added after the test hop if necessary. The heat from the exhaust serves to bake the first coat and make a better bond for the second.

Paint the tires, being careful not to daub the wheel stream-line covers. This little added detail sets the ship off surprisingly well and is worth the added time. Make one last check for "holidays" and chipped spots, etc.

In passing, the writer wishes to state that there has been repetitions purposely committed, so that the reader may turn to any operation and find it a complete story, instead of searching from page to page.

Some of the operations may seem extravagant and some may seem too short, but in all instances the first coats were of the best and the top coats moderately and safely cut short, where practical.

Remember that it is never safe to build on a false foundation. Adhere to that aphorism; preach it to your employers and fellow workers; prove it, and you will pave the way for future betterment of paint shop conditions.

Good raw materials and equipment are a gold-bond asset. Good mechanics must apply these materials and good equipment must play its part, and the maintenance between major overhauls will be negligible.

Color Mixture for Various Tints, Shades and Hues

On the color mixer's bench it is important that there be a variety of materials and supplies available so that results can be accomplished economically and safely. Some of the things needed are: plenty of clean pails and cans of different sizes—according to the number and quantity of colors to be prepared—mixing paddles of metal or wood, glass or tin measuring cups of different kinds, pieces of glass for testing colors when matching, a druggist's scale so that very small amounts of color can be measured by weight, an ordinary scale for weighing the larger quantities of color, a number of small panels to keep for reference when remaking a batch of color, a strainer, a sufficient supply of tinting colors of all kinds, turpentine, oil, dryer, and plenty of clean rags. This miscellaneous equipment and supplies must be on the bench and handy if the color mixer is expected to get good results.

It is also important to keep everything clean—especially your hands and finger nails. Always remove color from your hands and finger nails before it dries.

Again I repeat, "Buy nothing but the best colors and materials, and you will be rewarded by the best results at minimum expense."

NOTE BY AUTHOR: This article, by request, is a continuation of others on the same subject, which appeared several months ago in INDUSTRIAL FINISHING.

Magenta

White	(parts by weight)	22
Cobalt blue		1
Rose lake		6

Mahogany

Tuscan red		3
Cobalt blue		2

The Murphy Lacquer that builds a deeper film

for furniture and other wood surfaces

INCREASED solids in lacquer mean increased film thickness on the surface. Murphy H. S. C. (High Solid Content) is the lacquer that "puts a lot of good solids on the job"—and you need use only two or three coats as usual.

Though it builds a heavy film, H. S. C. has sufficient drying speed to meet fast production schedules—whether they call for one or more coats a day.

Pile it on heavy, if you wish—H. S. C. Lacquer flows out with no "orange peel."

Rubs perfectly—not the slightest signs of any greyish cast or haze on the surface—and has extremely high transparency.

And, with all these desirable qualities, H. S. C. Lacquer is also very *durable*.

Here is an opportunity to give your product a distinctly superior finish—an important sales advantage—with no increase in the amount of finishing material required, no increase in labor costs, and no change in your production schedules.

For a demonstration, or more information, write us.

MURPHY VARNISH COMPANY, Newark, Chicago, San Francisco

Essex Varnish Company, Newark (Associate Company) *Baking Material Specialists*

Maize

White 44
Medium chrome yellow..... 1

Maple

White 100
Yellow ochre 3
Raw umber 1

Marine Green

Black 4
Medium chrome green..... 1

Marron Glace

White 57
Burnt umber 11
Indian red 2

Mars Violet

Tuscan red 3
Burnt sienna 1

Mascot Blue

Black 7
Prussian blue 1
Medium chrome green.....touch of

Mauve

White 16
Cobalt blue 3
Rose lake 1

Mauve Blush

White 164
Rose lake 5
Deep chrome yellow..... 1

Mauve Rose

White 36
Rose lake 5
Deep chrome yellow..... 1

Mayflower Pink

White 236
Indian red 1

Mediterranean Pink

White 41
Prussian blue 1

Medium Gray

White 40
Ivory drop black..... 1

Melon

White 42
American vermilion 11
Rose lake 1

Midas Green

White 14
Medium chrome green..... 1

Middy Blue

White 2
Prussian blue 1

Mikado Red

White 7
American vermilion 9
Cobalt blue 4

Milwaukee Brick

White 87
Raw sienna 6
Burnt umber 1

Mineral Blue

White 5
Cobalt blue 4
Red madder lake..... 2
Black 1

Mink Brown

White 4
Raw sienna 6
Burnt umber 1

Mist Blue

White 118
Cobalt blue 3
Van Dyke brown..... 1

Misty Morn

White 166
Tuscan red 1
Cobalt blue 1
Van Dyke brown..... 2

Mode

White 114
Raw umber 2
Burnt umber 1

Mole

White 66
Burnt umber 8
Prussian blue 1

Monet Blue

White 100
Cobalt blue 68
Lemon chrome yellow..... 1

Monkey Skin

White 208
Indian red 1
Burnt umber 6

Moorish Red No. 1

English vermilion 3
Alizarin crimson 1

Moorish Red No. 2

Vermilion 3
Rose pink 1

Moroccan

White 35
Raw umber 12
Indian red 2

Mosaic Blue

White 48
Cobalt blue 16
Van Dyke brown..... 1

Moss Green

Raw sienna 3
Medium chrome green..... 2

Mountain Blue

White 8
Ivory black 2
Cobalt blue 6
American vermilion 1

Mouse

White 66
Burnt umber 11
Prussian blue 1

Muffin

White 70

INITIATIVE

There is a constant, popular demand for *something new.*

New designs.

New finishes.

The new appeal loosens purse strings, thaws frozen money, sells goods.

If you have something new in appearance and appeal, your market is made.

We can develop finishing materials for you to meet the *modern popular demand,* while keeping within your cost range, and building into those finishes actual durability and long wear.

Stille-Young finishes are made for conditions *today*—with an eye also on *tomorrow.*

THE STILLE-YOUNG CORPORATION

CHICAGO, ILL. **HIGH POINT, N. C.**

Lacquers • Shellac • Manufacturers Stains • Fillers • Specialties

Raw sienna 23
Venetian red 1

Mulberry

White 39
Tuscan red 6
Cobalt blue 1

Muscovite Green

White 8
Prussian blue 6
Medium chrome green..... 13
Orange chrome yellow..... 3
Black 20

Myrtle Green

White 20
Medium chrome green..... 7
Ivory black 1

Nasturtium

American vermilion 3
Medium chrome yellow..... 1

Nile Green

White 5
Prussian blue 6
Emerald green 9

Olive Brown

Burnt umber 3
Lemon chrome yellow..... 1

Olive Drab

White 50
Raw umber 8
Medium chrome green..... 5
Black 1

Olive Gray

White 200
Black 2
Medium chrome yellow..... 1

Olive Green No. 1

Golden ochre 7
Ivory black 10

Olive Green No. 2

White 50
Medium chrome yellow..... 2
Raw umber 3
Black 1

Olive Yellow

Burnt umber 3
Lemon chrome yellow..... 1

Old Gold

White 6
French ochre 12
Medium chrome yellow..... 3

Orange

Orange chrome yellow..... 18
White 1
Medium chrome yellow..... 1

Orange Pink

White 2
Dark orange chrome..... 1

Orange Brown

Burnt sienna 50
Orange chrome yellow..... 50

Orient Blue

White 25
Prussian blue 2
Lemon chrome yellow..... 1

Oriental Blue

White 100
Prussian blue 9
Lemon chrome yellow..... 1

Oriental Green

White 2
Lemon chrome yellow..... 2
Raw umber 1

Pale Blue

White 30
Brunswick blue 1

Pale Brown

White 4
Burnt umber 1

Pea Green

White 50
Light chrome green..... 1

Peach Bloom

White 17
Indian red 3

Peacock Blue

White 90
Light sylvan green..... 4
Ultramarine blue 4
Lampblack 1

Peacock Green

White 7
Emerald green 50
Prussian blue 43

Pearl Gray

White 100
Ultramarine blue 1
Black 1

Persian Orange

Orange chrome yellow..... 14
White 1
Yellow ochre 5

Pistachio Green

Ivory black 7
Yellow ochre 1
Chrome green 1½

Poppy Red

Prussian blue 1
American vermilion 24

Porcelain Blue

White 1
Medium chrome green..... 1
Ultramarine blue 4
Black .....touch of

Pure Blue

White 20
Ultramarine blue 2

Pure Gray

White 100
Black 1

Purple

White 1
Ultramarine blue 1
Indian red 1

PEEL endanger More than merely the Finish

● Lacquers founded upon the superior solvent qualities of Butanol and its derivatives offer a readily apparent advantage, with practically every material to be finished. The dangers of blush and peel are virtually eliminated. Hand-finishing time is reduced to a point where it shows a substantial, worthwhile saving. Smooth, thoroughly united coats of unusually long life assure the eye-appeal so important among selling factors.

● For almost a decade, successful manufacturers have found it advantageous to insist upon lacquers formulated with Butanol. They have learned that blush and peel are apt to endanger more — not merely the finish of their products.

COMMERCIAL SOLVENTS CORPORATION

SALES OFFICES:

230 Park Ave. NEW YORK, N. Y. | Aldwych House Aldwych, W. C. 2 LONDON, ENGLAND | Terre Haute INDIANA

Plants—Terre Haute, Ind., and Peoria, Ill.

BUTANOL

It spells Lacquer Safety

Purple Black

Lampblack 5
Rose pink 1

Purple Brown

Indian red 8
Burnt umber 1
Black 1

Reddish Drab

White 90
French ochre 8
Burnt umber 2

Rosewood

American vermilion 1
Black 6
Medium chrome green.....touch of

Royal Blue

White 34
Ultramarine blue 19
Prussian blue 2
Rose lake 1

Royal Blue Dark

Ultramarine blue 18
Prussian blue 2

Royal Purple

Ultramarine blue 2
Carmine 1

Russet

Orange chrome yellow..... 14
Medium chrome green..... 1

Sage Green

White 300
Light chrome green..... 2
Burnt sienna 1

Salmon

White 40
Golden ochre 5
Venetian red 1

Sapphire Blue

White 4
Chinese blue 1

Scarlet

Vermilion 20
Light chrome yellow..... 7
Golden ochre 1

Sea Blue

White 16
Ultramarine blue 3
Raw sienna 2

Sea Green

White 50
Dark chrome green 1

Seal Brown

Burnt umber 10
Golden ochre 2
Burnt sienna 1

Shell Pink

White 50
American vermilion 2
Orange chrome yellow..... 1
Burnt sienna 1

Silver Gray

White 97
French ochre 2
Lampblack 1

Sky Blue

White 300
Cobalt blue 1
Prussian blue 1

Slate

White 100
Ivory black 3
Ultramarine blue 1

Slate Green

White 16
Black 6
Raw umber 1
Deep chrome green..... 3
Prussian blue 1

Snuff

White 9
Orange chrome yellow..... 1
Burnt umber 2

Snuff Brown

Burnt umber 50
Golden ochre 50

Spruce

White 80
French ochre 10
Medium chrome yellow..... 6
Venetian red 4

Stone

White 5
Burnt umber 1
French ochre 2

Stone Brown

Burnt umber 10
Golden ochre 1
Burnt sienna 2

Stone Green

White 25
Dark chrome green..... 2
Raw umber 3

Straw

White 97
French ochre 7
Medium chrome yellow..... 3

Tan

White 20
Burnt umber 6
Burnt sienna 3
French ochre 2

Terra Cotta No. 1

White 2
Burnt sienna 1

Terra Cotta No. 2

White 2
Venetian red 1

Thrush Brown

White 12
French ochre 1
Burnt umber 3

(Continued on page 55)

Paasche Airrubbing Equipment used in finishing cabinets in large radio plant.

Paasche

Paasche airrubbing machine gives 1600 hand strokes per minute. It produces finer finish, faster work and more uniform results than any other method. Send for bulletin.

Paasche Universal Convertible Multi-piehead Airbrushes cover widest range of airfinishing work with standard equipment--adaptable to all coating requirements.

AIRRUBBING FACTS

One of our many users reports:

Annual Savings.....$4,261.40

Increased Production.....308%

Equipment paid for itself in 2 weeks

Have you ever asked yourself, "why didn't we buy that equipment sooner"? That's exactly what a well-known manufacturer said who installed a Paasche airrubbing machine and gained an annual return of 2300% on the investment.

Finer finishes can be obtained with greater speed and at less cost with Paasche Air-equipment than with any other, due to patented features.

Investigate the opportunities for saving in production cost offered by Paasche. One of our Airfinishing engineers will gladly help you solve any finishing problems, without obligation.

Paasche Airbrush Co.

1921 Diversey Parkway Chicago, Ill.

Branches in all Principal Cities

New Materials and Equipment

Diglycol Oleate; Diglycol Stearate

The esterification of poly alkyl glycols with oleic and stearic acids has produced two new and useful products. Diglycol oleate and diglycol stearate are now being produced commercially in this country by the Glyco Products Co., Inc., Bush Terminal, Brooklyn, N. Y.

Diglycol oleate is a brown oily liquid having a marked odor. It is not soluble in water but is soluble in alcohol, esters and hydrocarbons. It acts as a softener for rubber, resins and varnish gums. It is a liquid soap which is permanently non-alkaline and therefore will not affect delicate colors and fibers. It is an excellent emulsifying agent giving water in oil emulsions which are of particular advantage in automobile and furniture polishes. By the addition of a small amount of alkali the latter emulsions are inverted to oil in water emulsions.

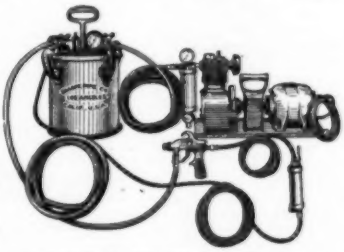
Diglycol stearate is an almost white wax-like solid melting at 58°C. It is somewhat soluble in cold alcohol and hydrocarbons and very soluble when heated above its melting point. It is useful as an emulsifying agent which also is free from alkalies and amines. It dispersed in water heated to 60°C or over. A 3% dispersion gives a very viscous, milky, stable fluid. A 10% dispersion gives a soft white cream or paste.

Emulsions made with these diglycol esters may be used on cotton, wool, rayon, paper, leather etc. for lubrication, flexibility and luster.

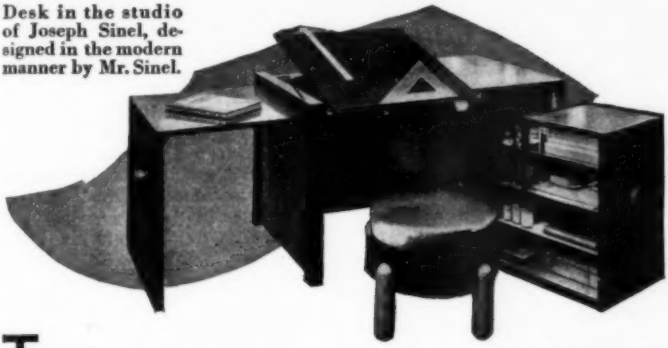
New Sharpe Spray Unit

The Sharpe Mfg. Co., 1356 S. Flower St., Los Angeles, Calif., recently placed on the market their new Series B, 1-N direct connected spray machine, which is perfectly balanced and practically vibrationless. The maximum of power possible in a ¼-h.p. machine is developed.

This machine is offered in two styles, depending on the type of finishing to be done. For lacquer work a very efficient syphon type spray gun with fine atomization is furnished; if enamels or oil paints are used, either for interior



Model 1-N Unit with pressure drum.



Desk in the studio of Joseph Sinel, designed in the modern manner by Mr. Sinel.

Teglac Lacquers have a hard, tough, varnish-like depth of finish

The glass-hard, mirror-like surface typical of Teglac-formulated clear rubbing lacquers is explained by Teglac's high refractive index. No ester gum or natural resin can compare with it. In addition, Teglac lacquers are unusually free from gum blushes.

Teglac is the low-priced synthetic resin that reduces nitrocellulose requirements. It eliminates de-waxing. It improves brushing or spraying, and at the same time adds materially to the durability and appearance of clear or pigmented lacquers. Teglac makes a superior sanding sealer. Flatted finishes of excellent sheen can be obtained.

Investigate the complete Teglac Lacquer System. Bring your manufacturing departments up-to-date on the advantages of Teglac-type finishes. Ask for full information.

Industrial Chemicals Division

American Cyanamid Company

535 Fifth Avenue New York

decorating or other purposes, an extremely efficient low-pressure internal break-up gun is provided. For this heavy material the gun can be had with either a pressure cup or 3-gallon container, or both.

Bright Silver Finish

Otto A. Both Corp., 50 Hartford St., Boston, Mass., announces a new bright silver finish, particularly interesting to the casket, hardware, toy and all metal-finishing trades using aluminum bronze powders. This new finish is "Puritan" Silver Paste, and comes in two standards of quality—one extremely fine and one medium-coarse and brilliant. Both grades, however, are more than three times the fineness of the finest powdered aluminum.

This new silver finish lays absolutely smooth and leaf-like on any surface, and can be used for painting, spraying, dipping or brushing. Due to its extreme fineness and its patented method of manufacturing, the original brilliancy of the metal is fully retained. It is not artificially polished, and therefore does not lose its brilliancy when in solution.

"Puritan" Silver Paste works in either lacquer or varnish bronzing liquid, and can be mixed with pigment paints and lacquers to produce greater coverage, and at the same time give a pearl essence effect.

Improved Strainer

An ingenious removable-bottom strainer of entirely new design for the paint, varnish, lacquer and certain other industries is being announced to the trade by the Newark Wire Cloth Co., Newark, N. J., manufacturers of wire cloth of all sizes, weaves, meshes, and metals, for all industrial services.

This new strainer is both a time saver and a wire cloth saver. Instead of tacking the cloth onto a wooden frame, as was formerly done, a simple and quick clamp adjustment loosens the old cloth and then a reverse operation clamps the new cloth in place on a

durable galvanized-iron frame. The lower rim serves as a guard to protect the bottom, that is, it is a "raised bottom" strainer. The frame is 5-in. deep with rolled top and bottom edges. Stock sizes 12, 16, 18, and 20-in. in diameter. Special 21-in. diameter strainers are made for vibrating equipment.

Ronnevig of Spruance, Dies

Mr. Hans Ronnevig, after an illness of several months, died at his home in Philadelphia, Pa., Saturday, December 19, 1931. Mr. Ronnevig was for many years associated with The Gilbert Spruance Co., of Philadelphia, in the capacity of sales executive and expert adviser in the wood finishing branch of the company.

Report Business Conditions

J. H. Kalte, manager of the High Point, N. C. plant of The Stille-Young Corp., has recently covered the southeastern industrial territory with Mr. Al B. Sinclair, also a very well known representative of this organization. They report generally improved conditions in the southeastern wood-finishing plants, and believe that there are excellent prospects for the early part of the new year.

The remover that enables you to do a *perfect job of refinishing*

Lingerwett is noted for the *speed* and *ease* with which it removes old finishes. This is important—for it means a real saving in labor costs.

But of equal importance, is the fact that Lingerwett enables you to do a *perfect job of refinishing.*

Lingerwett contains no acid or alkali—therefore it has no discoloring or burning effect on wood. Due to the scientific manner in which its ingredients are balanced, Lingerwett leaves *no wax-deposit* on the surface. When the sludge is removed, the surface is absolutely clean—in first-class condition for refinishing.

If you have never used Lingerwett, we urge you to send the coupon for a free trial can.

The Wilson-Imperial Company
Newark, N. J.

LINGERWETT REMOVER

TRIAL CAN FREE

The Wilson-Imperial Company
115 Chestnut St., Newark, N. J.

Please send me a free trial can of Lingerwett Remover.

Name .....

Street .....

I. F.-1-32

City.....

Questions and Answers

Lacquer Machine Tools

We have been using lacquer on our machine tools for the past five years, but of late we are experiencing trouble that we cannot seem to eliminate; neither can the manufacturer of the lacquer help us. The parts to be lacquered are very carefully snagged and ground to remove all casting scale and sand; then they are filled with a lacquer filler and rubbed down. After machining they are given two coats of binder, after which they are ready for the air brush. In certain places we find rough spots and when they are rubbed down they leave minute holes similar to air bubbles. We have done everything as regards cleaning up all our equipment, seeing that there is no air or water in the air gun, and everything we can think of, but occasionally we strike these spots which show up as indicated. Probably some of your readers have had similar experiences and can give us the information necessary to avoid this trouble.—F. G. S. Co.

Everything seems to appear okay up to or immediately following the application of the binder (or sealer), after which the parts are sprayed with the lacquer finishing coats, therefore, the cause of the rough spots evidently occurs in connection with either the binder coats or the finish coats.

If the roughness were in the sealer, it would be apparent before lacquering, unless the lacquer is lifting the sealer. This sometimes happens if the surface of the sealer has been scratched, because frequently an undercoat that is immune to lacquer, so long as the top glaze is intact and not broken by sanding or similar abrasion, will "lift" wherever that top glaze is cut or scratched. The most effective way of detecting whether or not undercoaters for lacquer are immune to lifting is to make a pocket-knife cross-cut over the panel to be tested; then spray on the lacquer. If the undercoater is lift-proof there will not be any lifting at the cuts, whereas if it is not lift-proof the undercoater will surely lift into "ruffles" along the line of the cut, even though it may not lift elsewhere.

If the sealer or binder is all right, then there's nothing left but the lacquer itself to cause the minute holes. The lacquer enamel (I assume the finishing coats are colored) may be dirty from coarse pigmentation or skins due to poor grinding, or because the enamel is not clarified. If the lacquer contains dirt, or coarse, dry pigment, rubbing the surface will pull the

WITH THE RIGHT FINISH, YOU'LL FINISH RIGHT

for a
BIGGER
BETTER
YEAR

with
LILLY
Lacquers
Enamels
Stains
Fillers
and
Varnishes

Lucky Days with LILLY

Every day's a lucky day when you use Lilly Finishes. Quality in formula and materials, and uniformity in manufacturing assure dependable and satisfying performance. Specify Lilly Finishes for a bigger, better year in 1932. Address either office.

LILLY VARNISH COMPANY

666 S. California St. Indianapolis, Ind.
273 N. California Ave. Chicago, Ill.

LILLY

Kindly mention INDUSTRIAL FINISHING when writing advertisers

dirt out, leaving small holes. However, if there is no dirt in the lacquer, it is barely possible that the surface was not perfectly clean before spraying. There could be moisture or oiliness within minute pores of the undersurface, over which the lacquer would bridge and then be cut loose in the rubbing.

Whatever the cause of this trouble may be, I believe it can easily be determined by a few simple tests at the plant. I suggest the following:

To ascertain whether or not it is dirt pulling out, examine the rough spots through a magnifying glass, cutting open the defective places on the surface while looking through the glass. This will enable you to see inside the surface and to observe the true nature of the bare spot for indication of moisture, oil or grease, etc., and particularly whether or not the surface exposed to view is the binder or the material preceding the binder coats.

Test the lacquer on the machined parts without the binder coating; also one and two coats of the lacquer alone on a thoroughly-cleaned, smooth steel panel. If the lacquer by itself is all right, look to the binder, or else an unclean surface before the binder was applied. Unless the machined surfaces are thoroughly clean, the binder cannot adhere properly; it will be raised up in spots from contraction of the drying lacquer coat.—E. Perry.

To Match Gum and Walnut

Can you suggest any stain that will give us the correct color on black gum to match with walnut veneers? We are manufacturers of bedroom furniture, using bed panels, dresser tops and fronts veneered with walnut, and are using black gum for the solid parts such as posts, rails and glass frames. As you are aware, black gum is very light colored and the color is about the same as that of basswood. We are not as successful as we would like to be in staining this black gum to a proper match with the color of the walnut veneers as this black gum seems to become "grayish-brown" when stained with the same stain as is used on the walnut veneers. —P. C. C.

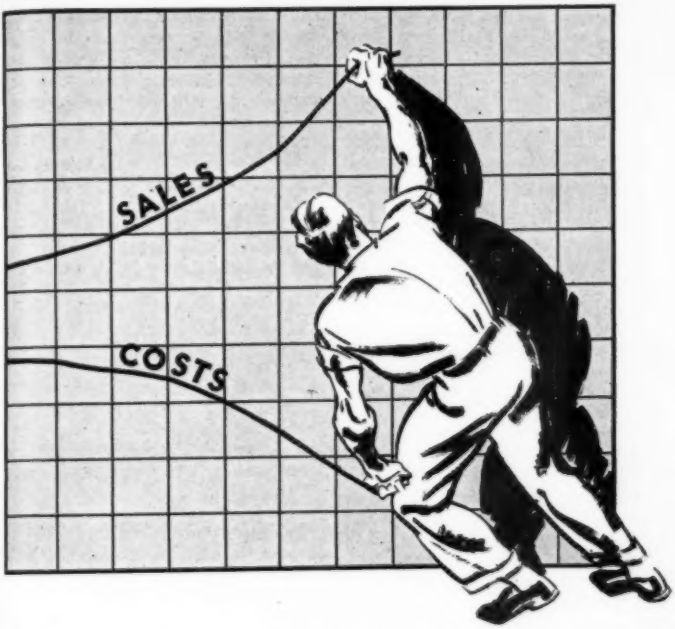
The most successful means I have found in matching black gum and walnut woods is to use a lacquer shading stain. I suggest that you first stain and fill the walnut veneers as usual; allow to dry and then stain the gum, applying the shading stain with a spray gun. This gives as nearly as possible a uniform walnut color.

If an "overshot" of shading stain should show up on the walnut veneered parts, it can be easily removed by rubbing the spot with steel wool.

I have been associated for several years with a large manufacturer of high-grade bedroom and dining room furniture, and we have found this method to be the most successful in matching gum and walnut.—Geo. A. Anderson.

Several methods have been employed to finish the different kinds of gum wood to harmonize with other cabinet woods. However, it continues to be a problem with most of us. The following is a process we are successfully using on posts, rails and frames:

We use a walnut, uniforming, oil stain, which carries a certain amount of silex, and to one gallon



Is your FINISH doing its share?

This thin film of *finish*—is it *working* for you? Is its color right? Does it *look* like quality? Or will it scratch, mar, and wear quickly? Can it peel off? Is it costing you too much?

Are you *sure* of these things?

Until you watch actual people really buying your goods, you can't appreciate the vital importance of FINISH. It can make or break the sale.

Egyptian has for years been making fine finishes that *help* sales. They please the undecided eye. Once in use, they *hold* good-will.

Back in your factory, these same finishes often reduce finishing costs materially.

Call up the Egyptian man and let him size up how *your* finish can work harder for you.

THE EGYPTIAN LACQUER MFG. CO.

90 WEST STREET · NEW YORK CITY

Atlanta	Cincinnati	Kansas City	San Francisco
Boston	Cleveland	Los Angeles	Seattle
Buffalo	Dallas	Philadelphia	Spokane
Chicago	Detroit	Portland, Ore.	St. Louis

of this stain we add 3-lbs. of paste filler colored to blend with the stain. The stain and paste filler will readily mix and therefore take care of the pores in the walnut panels.

The gum, of course, comes out lighter in shade, even though care is taken not to rub the gum too hard.

As soon as the surface is cleaned off, or after a duration of several hours, we make a stain of water colors to match the walnut, adding an ounce of denatured alcohol to a pint of stain. Then with a pad of soft cloth we apply the water stain to the gum with a light, smooth touch until a uniform tone is obtained. If the water stain is strong enough, a stroke or two is sufficient and the effect is immediate.

Contrary to the general belief, this water stain does not raise the grain of the wood and is very transparent. Around mouldings or in cracks a small brush may be used to wipe off the excess stain before it sets.

We have found this process to be entirely successful and economical.—J. W. McFadden.

Tumble Wood Beads

We are sending you a few samples of wooden beads, the finish of which we secure by means of a dipping process, using a fast bake synthetic varnish. This finish is a very satisfactory one of full-bodied, high-luster quality, but it has come to our attention that it is possible to get practically as good a finish with a tumbling process, and we are wondering if you could offer any suggestions as to how we could equal this finish by tumbling the beads.

We are also sending you a few samples of imported wood beads which have been tumbled and which have as good a finish as the one we get by dipping. Since our production, when we are busy, is rather sizable, a tumbling process that would produce a finish as good as that on the imported beads, would save us a considerable amount of money. Can you help us out?

Also can you suggest how the silver metallic finish is produced on one of the imported beads?—J. W. P. & Co.

We would pronounce as "very good" the finish on the domestic beads, so far as appearance is concerned, but would not consider them satisfactory from the point of service. This condition may be corrected at a low cost by placing the beads in a basket and dipping in sealing primer reduced with turpentine (not naphtha) and air drying for 24 hours or force drying for 2 hours in a temperature at 160°F. before enameling.

This process will make the beads waterproof and also improve the results produced with the finishing enamel when dipped on as now being done. We do not believe that it is possible to duplicate the finish now being secured in a gloss, pigmented enamel by a tumbling process.

The imported beads are apparently finished by first dipping the natural woods in an oil stain made from siennas and umbers ground in oil and reduced with turpentine; permitting them to air dry for 24 hours, and then tumbling them in shellac, this possibly being followed with wax.

The silver metallic beads were apparently dipped in shellac and immediately placed in a box of aluminum bronze powder while tacky. The powder adheres to the

4 Qualities that Make DAY'S ONE-COAT ENAMEL Valuable to You

DAY'S One-Coat Oil Enamel is a complete finish for metal stampings, toys, kitchen furniture, steel cabinets and the like.

It has all the requirements of a practical finish, developed to a superior degree.

1. *Opacity*
2. *Gloss*
3. *Speed*
4. *Economy*

One coat covers fully by spray or dip, without showing runs or sags. This is true even of white and light colors. The approved medium gloss does not vary.

Day's One-Coat Enamel air dries over night or may be force dried at 110 to 150 degrees in four to six hours.

The uniformly dependable working qualities of Day's One-Coat Enamel make it safe for quick production, free from trouble in application and after shipment.

Wherever a one-coat finish on metal is required, Day's One-Coat Enamel has no equal.

JAMES B. DAY & CO.
CHICAGO

Enamel, Lacquer, Shellac, Stain, Etc.

shellac and the beads are allowed to dry 24 hours; then they are placed in the tumbling barrel with cloth and leather scraps. This process burnishes the aluminum; finally they are finished off in a tumbling barrel with shellac or wax.

To approximate, and in some instances to improve, the imported wood bead finish we would make the following recommendations:

First, the natural woods: These should be basket-dipped in permanent penetrating stain of the desired color and allowed to air dry overnight. They should then be placed in a closed, horizontal, wooden tumbling barrel, together with several small sponges dipped in shellac, and revolved slowly for 45 minutes to one hour. If a higher luster finish is desired, remove the sponges and replace with a few bits of beeswax and leather scraps and tumble slowly for another hour or so.

The amount of shellac or wax, and the length of tumbling time required will depend upon the load and can be determined only by trial. A closed wooden barrel (not a metal one) is required to get results, and it should be geared to revolve slowly.

Second, the metallic finish in colors: The beads should be first placed in an ordinary open tumbling barrel, fitted with fins to prevent slipping, and spray coated while in motion with white enamel undercoat; then air dry 24 hours or bake 3 hours at 160° F. When dry, place in barrel and tumble 5 to 10 minutes to smooth the surfaces. Next dump the beads out, blow dust from the barrel, replace the work and spray it while in motion with silver opalescent lacquer enamel (or any other desired color) reduced 40 thinner to 60 enamel; allow to air dry overnight and place in a wooden tumbling barrel with shellac or wax and revolve slowly for a limited time.—A. B. Laboratories.

Dip Finishing Handles

We are interested in securing information about the pyroxylin enamel dipping of small wooden handles, and the drying of these dipped articles.

At the present time we are using modern dipping machines, but the results are not wholly satisfactory, due to the fact that proper knowledge of correct mixtures of enamel and thinners, machine speeds, and drying conditions are not available here.—T. & S. Mfg. Co.

I am sending you a few handles finished with two light coats of enamel (name on request) and you will notice they are very nice and acceptable.

When dipping two-coat work it is better to run the machine all day applying the first coat; then place the second coat on your work the next day.

To dry the surfaces hard and reliable it is best to run truck loads of handles into a well heated drykiln with plenty of air circulating through same—not by pressure but by having open ports or holes at the bottom and at one side of the kiln and an equal number of port holes on top and on the opposite side of the drykiln—to allow the air to circulate freely, and this will carry off moisture and the evaporation of enamel thinners.

The heat need not be over 80° F. and must not be over 100° F. This circulating arrangement will do the work in a satisfactory man-

You Need

WATEROIL STAIN

Because it is fast to light. Does not bleed or fade, will not raise the grain. Covers more area per gallon. Produces a TRUE WATER COLOR.

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 # 1900 WATER OIL RUBBING OIL eliminates entirely the bluish bloom or haze. No finger marking or oily surface.

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STAR SHELLAC STICKS. New Prices. Write us for information.

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Quick Drying Fillers, Lacquer Shading Stains, Finishing Waxes, Lacquers, Sealers, Drawer Coaters, etc.

"Unquestionable Quality"

WOOD FINISHING SUPPLIES

V. J. DOLAN & COMPANY, INC.

1830 N. Laramie Ave. Chicago, Ill.

THIS IMPROVED FLAT RUBBING VARNISH *cuts cost*

RIGHT when the question of costs is of prime importance—comes the news of this J-W-F Improved Flat Rubbing Varnish. Not only will it materially reduce production costs, but it gives a better job in less time—and is ideally suited to present day finishing methods. Already many manufacturers have adopted this Improved Flat Rubbing Varnish and we are anxious for you to try it, too. For that reason we are making a special offer of a five gallon can at drum price.
Take advantage of this offer and try out this varnish in your own plant. Send for complete details and your test can today.

JAMESTOWN WOOD FINISHING COMPANY

PLANT AND EXECUTIVE OFFICES
JAMESTOWN, NEW YORK

BRANCH OFFICES:
MERIDEN, CONN., LENOIR, N.C.
NEW YORK CITY, MILWAUKEE, WISC.

CHECK THESE FEATURES

1. SKINNING—Can be sprayed from drum and remain uniform without skinning.
2. TRANSPARENCY—Is quite transparent, not showing milky on dark finishes even on two-coat work.
3. DRYING—Dries to hard film overnight.
4. RUBBING—May be oil rubbed overnight.
5. SETTLING—Flatting agent remains perfectly suspended, giving uniformity of sheen.
6. BODY—Has good full body.
7. SHEEN—Furnished in four grades, varying from dead flat to light rubbed finish.
8. UNIFORMITY—Varnish does not thicken on standing. Body and sheen remain uniform.

ner, and you will understand just what size drykiln will be sufficiently large to handle your daily output.

I arranged one of these kilns for a concern in Pennsylvania, and received a report from them saying it worked in a most satisfactory manner, and in this kiln I had six 6-in. round port holes at the bottom of the kiln on one side and six of the same size on top of the kiln on the opposite side, and as this worked out satisfactorily you will not be obliged to do any experimental work.

Each one of these port holes was supplied with a damper with which you could close all or any portion of the air coming in the kiln and the air going out of the kiln, but as near as I can tell they leave these port holes open in ordinary weather. In the extreme cold weather they cut off a portion at the top and bottom of the kiln. A little experience on your part will teach you how to regulate the port holes in cold weather.

I am now referring to the enameling of all kinds of woodwork, but am led to believe that this same rule will apply to the lacquers and enamels when placed on metal goods.—C. W. Smith. (Mfr. of Dipping Machines)

More Comments on "Send Us a Sample"

"Send us a Sample," signed C. D. Youngs, on page 7 of November issue has attracted my attention, and I beg permission to go a little further into the problem of sample procedure. I would like to try to relieve the sample practice, per se, of some of the odium which Mr. Youngs, as the result of his recent unfortunate experience, heaps upon it.

This system, like many another in business, has been abused. As Mr. Youngs points out, the sales as well as the salesman is responsible for its present dishonorable status. Supply is dependent upon demand. Granted that the free distribution of samples of merchandise lacking in merit and without applicability is a nuisance, the acceptance of such samples can be recognized only as an encouragement of the practice. On the other hand, it is my opinion that the sample of quality material, *treated with due respect*, is the most effective advertising, barring, possibly, notice in this esteemed publication, available to manufacturers.

What constitutes the "respect" due an honorable sample? It must come, obviously, from two sources—the manufacturer and the prospective customer.

Take, first, the manufacturer's responsibility to the sample. He owes it a place in the hands of a worthy salesman. Webster's definition of this genus is "a man who *sells* goods," and please note that the dictionary makes no mention in this connection of a man who *gives away* goods. (The representative who responds to "Send me a sample and I'll test it out," without making a follow-up is usually a charlatan; he who hopes to pad his reports to his manager with erroneous or exaggerated accounts of business prospects, is a knave; and one so ignorant of his product as to be unable to estimate the probable expense to his concern of his proffered sample, is a fool. In other words, representatives who misrepresent, anywhere along the line, are not salesmen, but rather a disgrace to a profession which usually ejects them.)

The worthy salesman offers the

NEW

THE LATEST DEVELOPMENT IN PENETRATING STAINS

TURKEY WALNUT

obtained with

"Spruance Quality" 551

PENETRATING STAIN

THIS stain produces the beautiful amber tone of oriental turkey walnut when used on well matched walnut veneer and filled over with "Spruance Quality" 2843 walnut filler.
This Stain does not raise the grain of the wood, does not bleed under lacquer or sealer, does not wipe up under filler. It produces a clear, transparent color, similar to an acid stain, without wash-coating or sanding.

THE GILBERT SPRUANCE CO.

OFFICES — WORKS — LABORATORIES

Richmond and Tioga Streets Philadelphia, Pa.

LACQUER SPECIALTIES

Each class of industry requires a definite group of Lacquers designed for its particular needs.

This is the basis upon which M & W Quality Lacquers have been made for many years.

May we outline our recommendations on Lacquers for—

Caskets	*Furniture*	*Paper*	*Refrigerators*
Compacts	*Glass*	*Pencils*	*Silverware*
Clocks	*Hardware*	*Radio*	*Washing Machines*
Filing Cabinets			*Wood Handles*

An opportunity to co-operate with you to improve your finishes would be appreciated.

MAAS & WALDSTEIN COMPANY

Executive Offices and Plant

430 Riverside Ave. Newark, N. J.

Chicago Office & Warehouse
1115 W. Washington Blvd.

Los Angeles Office & Warehouse
2416 Enterprise Street

sample only where he can visualize a definite use for it, whether or not the customer is yet aware of its suitability. He arranges preferably to have the sample charged subject to approval. He submits with his sample a working schedule calculated to give the best results. He keeps in touch with the progress of the test. He is always interested to hear of the modifications in his schedule which the individual customer finds it expedient, as the result of his experience and particular equipment, to make.

Often, because of the wide range in the uses of his product, the salesman is able to offer valuable suggestions on experimental work. In cases of novelty finish, the salesman has his firm's laboratories show his material on the prospect's own product. If the results meet with the prospect's approval, the schedule for running is turned over to him with the filling of his order.

When submitting staple developments, the salesman endeavors to be personally represented at the tests, provided of course, that such representation is not contrary to business ethics—that is, a competitor's test is not being run simultaneously. In fine, to the worthy salesman, the good of the customer's business is the good of his own business: mutual benefits must accrue.

Conscious of this relationship and with so much at stake on both sides, the salesman (who, perhaps, knows his smut upon occasion as well as the next) is not inclined to delay his argument to a prospect by a prelude of stale stories. If, on the other hand, he detects a weakness on the part of his customer for sport, politics, theatre, this, or that, and time permits, he is quick to enjoy the personal touch that comes from a shared enthusiasm. The worthy salesman, then, makes friends; he serves while he sells; and in his hands the privilege of the sample is inviolate.

Taking the other side of the picture, to what marks of "respect" from the customer is the sample entitled? Simply an honest recognition of what it is—an obligation to give the material which it represents a fair trial with a view to purchase if the results prove satisfactory. (The customer who accepts samples for which he claims he has no use, must be a charlatan; he who accumulates store-rooms full of samples is, at least on the face of things, a knave; and the one who cannot say that simple but perfectly adequate word "No," is, I fear, a fool.)

The worthy customer acknowledges the sample a privilege and avails himself of it with discretion. He may accept free samples, he may ask for samples, he may buy samples. In the majority of cases, his code of business ethics will probably dictate that he pay for his samples. He acquires samples only of materials which he feels justify testing and, regardless of how he acquires them, he tests them. He tests them at his convenience, guided by the schedule recommended, with any modification his equipment or inclination may suggest.

During the test the salesman's representative may or may not be present, according to the nature of the problem and the requirements of the situation. He recognizes and welcomes the effort on the part of the salesman to cooperate. When the test has been run he does not hesitate or delay

to make known his decision. The worthy customer, like the worthy salesman, gives the sample a square deal; in his hands the privilege of the sample is inviolate.

A *square deal*, no more, no less, is the respect due an honorable sample.

Lest I be accused of vaporing on a Utopian state, let me say in conclusion that I am writing from personal experience. Perhaps I have been fortunate in that the vast majority of my business associations have been with worthy customers and worthy salesmen. However, I am confident that I am legion in this heartening experience—Mr. Youngs' sad story to the contrary.—A. J. BEECHER, A. B. Laboratories.

Prevent Finish Chipping Off

We were troubled recently with some of our wood finishes cracking and chipping off in large flakes. Various ways were tried to remedy this, but without success. Finally we discovered this cracking and chipping off of the finish was caused by our shading stain being too strong. Most shading stains are made much darker than necessary and can usually be reduced greatly. We found that by reducing one part stain to one part reducer we not only obtained a much better finish, but also a better tone of color.

I might mention, too, that one should always use a reducer made by the same firm as the stain for best results.—Geo. Anderson.

Sharples Appoints C. J. Lamb as New York Manager

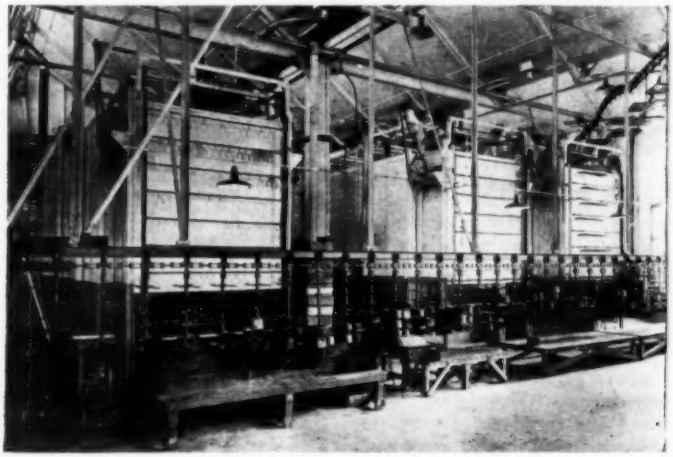
The Sharples Specialty Co., (Centrifugal Engineers) 23rd & Westmoreland St., Philadelphia, Pa., announces the appointment of Carl J. Lamb as New York District Manager. Mr. Lamb, a former Naval officer, has been in the service, engineering and sales departments of the Westinghouse Electric & Mfg. Co. until he resigned recently to join the Sharples Specialty Co. Previous to his connection with the Westinghouse organization, he was in engineering work with the E. I. DuPont de Nemours Co., and the Sinclair Consolidated Oil Co.

"The Economics of Paint"

"The Economics of Paint" is the title of a 20-page, 6x9-in. booklet, prepared by Henry A. Gardner of the Institute of Paint and Varnish Research, Washington, D. C., and presented on November 5, 1931, before the New York Metropolitan District Meeting of the American Society for Testing Materials. This booklet contains instructive information on such subjects as the conservation of lumber, metal, fuel and power, etc. through the proper use of paints and finishing materials.

EXPERT MANUFACTURERS
OVER-AWL SYSTEM OF QUICK DRYING FINISHES FOR WOOD OR METAL
Dip Stains, Fillers, Sealers, Shading Stains, Flat and Gloss Finishing Lacquers
San-Itai-Rie Filler for All Defects In Wood
G. J. Liebich Co.
SAN-ITAI-RIE FILLER CO., Division
931 N. Ogden Ave. Chicago, Ill.

Metal Finishing Department
Cleaning-Handling Baking & Polishing



Bake-finishing
Metal Radio Parts

by PHILIP KRIEGEL

SOME of the most interesting conveyor type bake-finishing ovens are in operation in the larger manufacturing plants that specialize in the production of radio parts. The dependability, efficiency and economy of this automatic equipment is a tremendous factor in making it possible for the management of radio finishing departments to meet the strict requirements imposed upon them

A finish that SELLS the Product

BREVOLITE

KRISTOKRAK LACQUER

Note the *clear* crystals of Brevolite's new Kristokrak Lacquer. Drys to a durable anisotropic formation, giving a finish that cannot be reproduced by any other mechanical means. Supplied for three methods of application:

(1) One-coat, air dry, pigmented, varied colors, for application direct to metal.

(2) Two-coat, air dry finish on wood, the first coat being our No. 700 Undercoat BREVOLITE, in any color, followed with the Clear KRISTOKRAK.

(3) Two-coat finish on metal, the first coat being Brevo-Bake Prime, in practically any color, which requires baking at 300° for an hour. This is followed with the Clear KRISTOKRAK.

Toning added to these finishes produces thousands of beautiful color effects.

SUGGESTION: Send us samples of your product and tell us what your special requirements are. We will finish the article accordingly and return for your inspection and test.

BREVOLITE

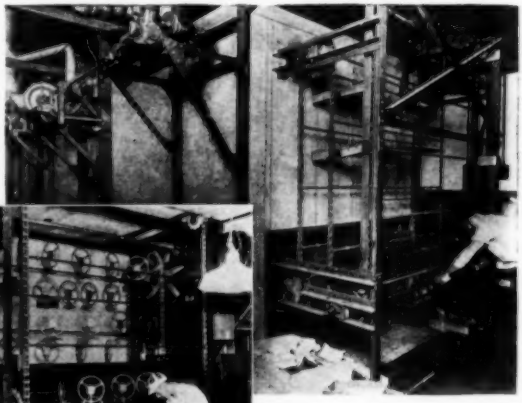
LACQUER COMPANY

(Also Waukegan Chemical & Lacquer Co.)

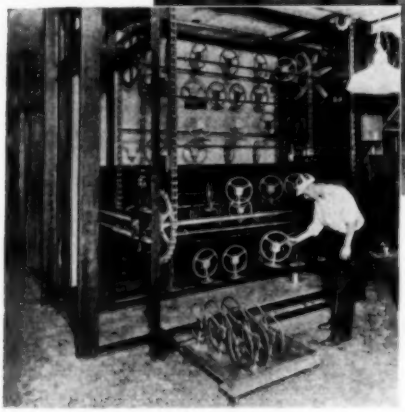
NORTH CHICAGO ILLINOIS

—namely, regularity of production at low cost, the uniformly high quality of bake finishing, and safety of operation for the products, the equipment and the workmen.

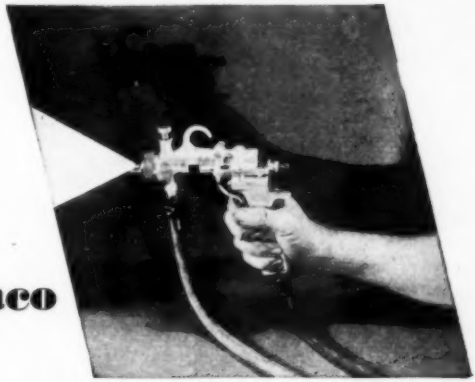
The illustration at the head of this article reveals a view snapped in the Atwater-Kent Mfg. Co.'s plant in Philadelphia, where 11 continuous two-strand conveyor ovens are baking an enormous production of power cases, speakers, lids, and other radio parts in japanned black and brown satin, crinkle and bright finishes. Some of these parts are sprayed and others are automatically dipped and conveyed through the oven on the flights of a vertical loop conveyor. The picture shows the rear view of a battery of three of these ovens for baking japan-dipped containers and printed lids, with a transfer conveyor carrying these parts after the bake to the assembly department. These ovens average 50-ft. long, 10-ft. wide, 13-ft. high.



The view at the left on this page was snapped in the finishing department of The Crosley Radio Corp., at Cincinnati, Ohio, where two continuous, two-strand, vertical-loop-conveyor ovens are in service for baking wrinkle and plain japan finish on cabinets, lids and bottoms, transformer covers, condenser shields and speaker frames. The oven is 44-ft. long, 13-ft. wide and 10-ft. high; it is equipped with dip and drain sections, the oven proper being designed for two zones of heating by means of an indirect gas radiator system.



The other picture (at right) shows a view in the finishing department of the American Bosch Magneto Co., Springfield, Mass. This conveyor oven handles practically the entire output of miscellaneous radio parts that require a black finish, and also various



Use Spraco Guns

for fast application and a fine finish

An Ohio company, spraying identical pieces with different makes of guns, reported *20% more work* with the Spraco Guns than with any of the others,—and a smoother finish.

Another user writes, "We are using 4 of your guns, have compared them with 2 other types of guns and *find yours to be faster* in operation and equal in quality of work."

Requiring only moderate air pressure, Spraco Guns produce a fine, uniform spray that is wet its entire width and will not split. Drift is eliminated, one stroke lays on as smooth a finish as two or more coats with a high pressure gun, material is saved.

Simple to operate, adjust and clean, Spraco Guns do the job in less time and do a *good* job with less material.

Please send Bulletin I-130 describing Spraco Guns and equipment for industrial finishing.

MR._____

FIRM_____

STREET_____

CITY_____

STATE_____

SPRACO
INCORPORATED

116 Central Street Somerville, Mass.

320

parts of magnetos. Picture on page 48 shows the loading end of a continuous conveyor oven, 38-ft. long, 12-ft. wide and 10-ft. high. The work is automatically dipped, drained, heated in a series of up and down passes through the gas-heated oven, cooled outside the oven, and removed at the unloading end as shown, the conveyor returning over the entire oven structure to the original loading point.—*Industrial Gas.*

Graining on Glass

A very effective imitation of wood may be done on a smooth piece of glass. The work is done in the reverse order from the ordinary way of applying graining. The overgraining is applied first, then the graining color is applied, and last the ground color is put on. The ground color backs up the work and brings into view the transparent color already applied to the glass. This work can be done best if a cardboard is sprayed with ground color and placed under the work—which gives one the same effect as working on metal or wood.

The glass is rinsed off with vinegar before any color is applied; the over-graining is done in oil color ground in japan; this should be thoroughly dry before graining color is applied. The graining color should be ground in japan. This should also be allowed to dry thoroughly before the base color is applied. If the base coat is to be of lacquer, I recommend that a thin coat of clear sealer be applied over the graining color. The base color should be sprayed on, if either oil or lacquer.

The proper colors for graining are:

For walnut ground color: yellow ochre, white and Venetian red. This should be a dark buff color.

Graining color: burnt umber darkened with Van Dyke brown.

For mahogany ground color: yellow ochre, orange chrome, Venetian red, white, and a touch of red lead.

Graining color: burnt sienna and Van Dyke brown with a touch of crimson lake.

For oak: white, yellow ochre, and add a touch of raw and burnt sienna to shade to a real brown ivory.

Graining color: raw and burnt sienna, burnt umber and Van Dyke brown.—J. W. London.

Customer "good will" is a firm's most valued asset . . . it brings in repeated orders as nothing else can.

Metallizing Process

The Metallizing Co. of Los Angeles, Ltd., 1218 Long Beach Ave., Los Angeles, Calif., has ready for distribution a new 4-page, illustrated circular describing a new process of metallizing by means of a metallizer gun, which sprays a non-corrosive, metal coating on any surface. Non-metallic products are given the appearance of valuable solid metals with a metallized spray; also a metallic surface can be made rustproof, acid-proof, etc.

Now Available!

SOLFO PAINTS

Due to expansion of our manufacturing facilities, we are now able to offer the trade a complete line of

INDUSTRIAL PAINTS, FINE ENAMELS & VARNISHES

Write for Name of Nearest SOLFO Dealer

SOLFO CHEMICAL COMPANY
TRENTON, N. J.

Manufacturers of
SOLFO METALLIC COATING

Superior Galvannealed PATENTED PROCESS

Superior "Super-Metal" PATENTED PROCESS

Two RUST-RESISTING Steel Sheets Coated with Spelter (Zinc) and Heat-Treated after being Coated. Have Etched Surfaces to which Finishes Adhere Firmly.

Sample and Booklet on Request

The SUPERIOR SHEET STEEL COMPANY
CANTON, OHIO

Division of Continental Steel Corporation — General Offices, Kokomo, Indiana
Plants at — Kokomo, Indianapolis, Canton.

Manufacturers of: Black, Galvanized, Long-Terne and Special Coated Sheets, Roofing and Kindred Products; Billets, Rods, Wire, Nails and all types of Fence. (133)

Metal Cleaning *and* Bake Finishing

by FRED MANNHARDT

THE CLEANING, drying, finishing and conveyor-oven equipment in one of our local factories is exceptionally interesting to anyone concerned with low-cost production and general efficiency in the handling of pressed metal parts to be cleaned and bake-finished.

The new conveyor oven takes up practically none of the floor space which is so valuable an asset in these days of mass production. The whole thing is a box-like structure of galvanized iron insulated with sheet asbestos. It is 73-ft. long and approximately 30-in. square. The work that is to be sent through is washed in large iron vats containing a chemical cleaner which is dissolved in water and heated to the boiling point.

The press which stamps out the pieces to be enameled has wisely been installed right next to the wash room. This arrangement not only saves time in handling but protects the raw metal from unnecessary handling and defacement. The metal parts, when given to the washer, are put into large wire baskets and then immersed in the cleaning liquid which in itself is highly potent, cleaning the grease off almost immediately. They are then rinsed in a tank of clear hot water and then dipped into a tank of clear boiling water.

The wash room is entirely separate from the enameling department so as to save time again in hauling. To avoid having to open the enamel room doors a slot has been cut in the wall, and a chute made of heavy wire mesh has been installed. The parts are mechanically lifted from the last hot-water rinse and then deposited onto the chute through which they slide or are pushed to a man who stacks and inspects them before the enameler "hooks them up" preparatory to dipping. The conveyor that passes through the oven is built on the principle of a ladder with cross wires about 3½-in. apart. The pieces to be enameled are hooked onto these cross wires by two operators stationed at the infeed end, while the conveyor is in motion.

In front of the enamelers are portable dip tanks of various colors, each tank holding about 70 gallons of enamel. Because of their weight when full, the tanks are set on rollers which enables the operators to move them easily without spilling or sloshing over any of the contents. This arrangement also makes it easy to change tanks when using different colors.

These facts may help you

REDUCE FINISHING COSTS

Write for them, today!

For Quality Finishing

SUPER SPRA-MORE "44" Price, Complete . . $69.00

From its wide experience in solving finishing problems for leading manufacturers, Crown has gained a fund of valuable knowledge in the reduction of finishing costs. By introducing new methods of material application—by eliminating unnecessary steps in the finishing operation—by employing more modern types of equipment and materials . . . Crown has frequently effected genuine savings for the manufacturer.

These facts may be had for the asking. Merely write, giving kind of product, and type of finish used. Address the

CROWN SPRAY GUN MFG. CO.

1218 Venice Blvd. **Los Angeles, Calif.**

Boston, 105 Broad St.; Newark, N. J., 1057 Bergen St.; Chicago, 551 W. Lake St.; Houston, 1023 E. 11th St.

Armitage ARMOREAC LACQUERS VARNISHES ENAMELS

ARMORCOID

TRADE NAME

Today's Closest Approach to a Porcelain Finish in Enamel!

Can be made mar-proof or non-scratching for:

Metal Furniture
Electrical Equipment
Metal Signs
Refrigerators
Radiator Covers
Tile, Etc.

Baking or Air-Drying

●

One-Coat WHITE, BLACK and SOLID COLORS

Will withstand outside exposure, if specified, and has all wanted characteristics, viz; adhesion, hardness of baked finish, high gloss or dull-quick bake. High solids give exceptional build and toughness without brittleness.

John L. Armitage & Co.

NEWARK, N. J. AND DETROIT, MICH.

The hooks that hold the work are long enough to allow for a lowering of the level of enamel in the tanks by as much as 2 or 3-in., thereby eliminating the necessity of refilling the dip tanks so often.

From the loading station the conveyor moves upward for a short distance, then gradually decends at an incline of about 40° until it nearly reaches the enamel; it moves along parallel to the top of the tank for a short distance and then angles upward at an angle of about 30° before leaving the tank. This permits all but a few drops of enamel to return to the tank, resulting in a big saving of finishing material. A drip pan about 7-ft. long extends from the end of the dip tank to the entrance of the oven, so as to give the work plenty of time to drip, level out and set before it reaches the heat.

The baking heat is furnished by a series of round gas burners placed about 10-ft. apart. Baffle plates are placed over the gas burners as a fire protection. Inserted at regular spaces of about 10-ft. apart are the thermometers which reveal how the bake stands. Several fume-exhaust pipes lead into a larger pipe, which enters a chimney. These exhaust pipes help to promote a general circulation of air in the oven.

The oven extends the length of the assembling room, and is overhead—about 7-ft. from the floor—which naturally makes available about 175-ft. of floor space. Two operators at the unloading end remove the work as it comes from the oven.

Under the oven there is a long assembly bench covered with heavy canvas belt which runs over rollers. This is kept moving and as each assembler in turn does his work, the part is laid back on the table and moves along to the next assembler, and so on to the inspectors and packers. When packed the finished products are slid out of the building through a long chute which leads into the trucks outside to be carried away to their point of destination.

— RICHELIEU —
PEARL ESSENCE
featured
on all bodies
at the
AUTOMOBILE SHOW

Colors Popular for Cars

According to the December issue of the "Automobile Color Index," published monthly by the Duco Color Advisory Service, blue has resumed leadership as the most popular automobile color, after 15 months of relegation. Green, black, brown, gray and maroon follow in importance in the order indicated at this time. Blue's current trend indicates possibilities of a further advance in the near future.

The importance of green as an automotive finish has more than doubled since June, but green is now showing evidences of nearing a peak in its present movement.

The beginning of the decline of black's popularity as an automotive finish was alluded to first in the July release of the "Automobile Color Index." Until now the decline has been gradual. The abrupt relegation of black from first to third place in sales appeal at this time would seem to indicate that the public has again become interested in colors of more cheerful mien.

The decline in the brown color trend is commencing to round out and a bottom appears to be in process of formation for this hue.

Interest in gray has not varied to any considerable degree during the year.

Maroon's major decline, which commenced last January, continues.

Color Mixtures for Various Tints, Shades and Hues

(Continued from page 28)

Turkish Red

Vermilion	4
Mahogany lake	1

Turquoise

White	20
Ultramarine blue	2
Light chrome green	1

Tuscan Red

Rose pink	2
Indian red	4

Velvet Green

White	20
Medium chrome green	7

Violet

Ultramarine blue	14
Crimson lake	3

Warm Gray

White	100
Black	3
French ochre	2
Venetian red	1

Water Green

White	15
French ochre	10
Dark chrome green	1

Walnut Brown

Burnt umber	5
Raw sienna	1

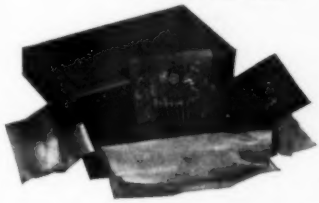
—J. K. Cooper

Old and Modern Wood Finishing

When we look back many years and consider how wood finishing was done—the time when wood staining was almost unknown, filling of pores in open-grained wood very seldom done, and if done cornstarch was applied; and after drying, the surfaces were laboriously sandpapered smooth. Most all furniture at that time was either just oiled or waxed.

Then came the era of oil stains, fillers made with silver white, and varnishes. At that time we had three shades in oak—natural, light antique and dark antique. These shades were all made with

★ A Box Like This For Everyone Who ASKS



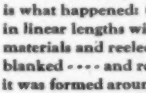
BLONDE

Brunette or Titian

When you write for this box of hairpins, don't forget to tell us the color of the "better-half's" hair. That's very important. She'll be pleased to get the hairpins and the neat, sturdy pin box. She will enjoy knowing that materials which come to your hand have an interest for her, too.

Before you take the box home, cast your critical eye over the package and its contents. The hairpins made by our customer, *Smith & Sons Corporation* of Buffalo, were *flexibly* finished with our materials. The box is the product of another of our customers, *The National Metal Edge Box Co.*, of Philadelphia.

On this box please note that "*staying*," as you see it, took an awful beating and came through in first class shape. This is what happened: (1) Strip-steel was coated in linear lengths with our flexible finishing materials and reeled up. (2) Then it was blanked - - - - and re-reeled. (3) Finally it was formed around the boxes as you see it. Vivid proof of flexibility and adhesion.



When we mail you the hairpin box, we'll send along our newest color card showing the 16 standard shades and their respective tints. These *flexible* materials are also available as clear lacquers. We'll also send along a series of Research Bulletins giving valuable finishing data.

Roxalin Flexible Lacquer Co., Inc.
40 Thirty-Sixth Street, Long Island City, N. Y.

SILK SCREEN PLATES

FOR printing designs and lettering on any flat surface. Any size, style, color or number of colors. No ties in any portion of design. Pictorial, Floral, Lettered, Marble and other effects on Cabinets, Beds, Tables, Chairs, Toys, Wagons, Etc.

Attractive Economical
Fast Efficient

Write for Information

NAZ-DAR COMPANY
4014-22 N. Rockwell St. Chicago, U. S. A.
Manufacturers of Silk Screen Process Paste Paints, Equipment and Supplies

The Cincinnati Varnish Co., Inc.
(Established 1865)
Division of The Foy Paint Co.
Cincinnati, Ohio
Manufacturers of
DEPENDABLE INDUSTRIAL FINISHES
Varnishes • Paints • Enamels
Japans • Stains • Lacquers
Special Finishes
OUR PRICES WILL INTEREST YOU

plain filler colored to suit. Later came golden oak which was generally stained with a mixture of asphaltum and turpentine before filling; great care was used in filling the pores. All work was varnished two or three times and either rubbed with oil, pumice stone and hair cloth for a dull finish; or water, pumice stone and felt for a bright or polished finish. Much stress was laid on a perfect smoothness of all work. Walnut was nearly always finished in natural color by using a filler colored with umber. Mahogany, also was finished natural; but when an antique shade of mahogany was wanted, a solution of bichromate of potash and water was applied before filling. Finishing furniture in those times was naturally a long-winded process and good work was hardly ever expected to leave the finishing room in less than two or three weeks.

Comparing these old methods with our modern way, with which I venture to say we are able to get as good and in many instances better results in one tenth of the time, we can't help but marvel at the progress we have made in a comparatively short time in the art of wood finishing.

Today we receive the finest piece of woodwork in our finishing room and with the aid of aniline stains, a quick filler and, last but not least, lacquers and spray guns, we can promise its delivery in first class condition in from 24 to 48 hours.

But this is not all. Some of us old-timers will remember how we used to worry when goods were packed or crated, and we thought the finished surfaces were not as dry as we thought they ought to have been. But now no more worry about paper sticking

to the finish, or pads marring it. When the work leaves the finishing room in a condition to our satisfaction, we know if it is handled carefully, there won't be any "comebacks."

Of course this new method of lacquer spray finishing requires just as much care as the old way. The finisher must be scrupulously clean with his air gun and must remove all grease or oil on or near his work; as you know grease and oil do not agree with lacquer. Another advantage of the new way is, when it used to take from one to two years for a man to become a good varnisher (coater), now two or three weeks is sufficient time to develop a fairly good spray operator.

Since the advent of the aniline colors and the spray gun, we have, I might say, revolutionized the finishing of all hardwoods—especially oak. We find many colors and shades, from the very palest semi-natural to the almost black weathered oak.—E. L. H.

Clean Spray Equipment

The lack of clean equipment in the finishing room means far too many rejects and "do-overs," so time and money can be saved by keeping a close watch of this feature of finishing. Of course a spray gun must be kept clean in order to have it work, yet too little attention is too often given to other parts of equipment.

Of course the spray booth should be kept clean, as an elimination of fire hazard, but cleaning of the material hose and turntables is too often overlooked. The hose should be cleaned every night, especially where lacquer is used, because if lacquer is left in the hose it will cause rot and the

SIX POINT WHITE

A product chemically engineered to give a long-awaited finish for refrigerator boxes, vending machines, hospital equipment or anywhere that a uniquely superior Lacquer Finish is desired.

Point 1. Tenacious Adhesion.

Point 2. Minimum Discoloration.

Point 3. High opacity combined with smooth flow and lustrous sheen.

Point 4. Unbelievable resistance to chipping, scratching, printing and other mechanical abuse.

Point 5. Marvellous resistance to water, oil, sulphur dioxide gas, and actinic rays.

Point 6. Write us for this and further information on our "SIX POINT" White System.

The Varnish Products Co.
Cleveland, Ohio

N. B. "6-Point White" can be tinted to a wide range of desirable pastel colors.

Hy-Speed
EXPLOSION-PROOF
ELECTRIC MIXERS
Clamp to *any* tank
and mix *all* liquids

MIX QUICKER
LAST LONGER
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Note Patented "Push Pull" Propeller Action

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MODERN FURNITURE FINISHING

A thoroughly practical book in five parts.

I. Period Furniture and modern styles.

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III. Furniture Finishing (Woods, Finishing Room Tools, Equipment, Materials, etc.)

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PRACTICAL PUBLICATIONS INC.
802 Wuslin Bldg. Indianapolis, Ind.

presence of small particles of decomposed rubber in the finish. Also a hose that is dirty will soon clog up and reduce the flow of material to such an extent that it will be difficult to use at all.

Many times air pressure is blamed for lack of flow in a material hose. The hose should be blown out after every job by holding a finger over the gun nozzle and pressing the trigger. Then the gun should be taken off and thinner poured into the hose to wash out the interior.

The turntable is difficult to keep clean because of overspray, but by covering it each day with a sheet of heavy paper, which can be taken off and thrown away, the table is always kept in a usable condition. This avoids that scraping operation which is necessary when the table becomes so filled with excess material that it does not turn easily or satisfactorily.

Clean spraying equipment means easier work, less trouble and better finishing.—C. D. Y.

Lithopone Widely Useful

A widening range of uses for lithopone serves to emphasize the industrial and economic value of this pigment, according to Dr. H. H. Morris of the Krebs Pigment & Color Corp.

Extending the uses of lithopone has been largely due to improvements made by American manufacturers in the properties of the pigment, and in the control of the manufacturing process from both the mechanical and the chemical angles.

Taking for example its use in making paints, Dr. Morris points out that "lithopone as first produced in the U. S. and for many years thereafter was a rather un-

certain pigment. About the only characteristic of the pigment which was certain was that it would darken in sunlight." Now, however, lithopone has not only been made light stable, but other handicaps which limited its employment in industries have been overcome.

At present lithopone is used in the manufacture of practically all kinds of paints both for exterior and interior application. This includes flats, enamels, stipples, undercoaters, quick-drying or "4-hour" enamels, nitrocellulose lacquers, floor and deck paints, fume-proof or laboratory paints, highway and zone marking paints and various others which have been developed to meet the growing list of special requirements of the day.

Lithopone finds many further uses in the finish or coating field owing to its use as an ingredient of cold-water paints, plastic finishes, calcimines, water colors and other paints which do not in general use oil vehicles.—DuPont Memorandum.

Meetings Scheduled Next Month

The 48th Annual Convention of the International Society of Master Painter and Decorators will be held in the Los Angeles Biltmore Hotel, Los Angeles, Calif., February 9-12. Headquarters, Hotel Biltmore; E. J. Bush, Peoria, Ill., secretary.

News of F. D. Snell, Inc.,

Foster D. Snell, Inc., announces that Harry J. Hosking has resigned his position in the research laboratory of the Roessler and Hasslacher Chemical Co., at Niagara Falls, N. Y., to take up similar work with the Snell company (130 Clinton St., Brooklyn, N. Y.), and that W. C. Pinkerton previously with the International Exposition Co., has been appointed Industrial Representative.

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for
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MAGAZINE

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Advertising rates on application.

EDITORIAL

Synthetic Finishing Materials

A recent letter from a prominent manufacturer of finishing materials reveals something of vital and timely interest on a subject that concerns all users, dealers and manufacturers of finishing materials. Excerpts are as follows:

"There is a vast difference between lacquers made from synthetic gum, and synthetic enamel, and there is a little bit of a difference between synthetic lacquers and lacquers containing natural gums.

"You can probably well appreciate the fact that since all lacquers have some gum in them, that with the introduction of the synthetic gum and the additional benefits of them, it was only natural that the lacquer manufacturers should adopt these gums in their formulas, to better their lacquer products. This is particularly true as regarding lacquer-type primers and surfacers.

"The synthetic gums provide a much greater adhesion than natural gums and consequently, synthetic gums are now used almost exclusively in all good lacquer primers and surfacers. For that type of material, lacquer thinners may be used satisfactorily. However, for the regular synthetic enamel, lacquer thinners should not be used as a general rule, because most of them contain some ester gum which would throw the synthetic gum out of solution and give it a curdled appearance."

Colors for the Home

Notwithstanding all that has been printed and said in regard to color and the intelligent use of color for well-balanced decorative effects, there is abundant evidence of a real demand for specific color information on the part of those who use paints and finishing materials.

A recent bulletin from the National Clean-Up and Paint-Up Campaign Bureau calls attention to this fact and quotes a letter from the secretary-manager of a local city's Beautification Committee. Excerpts from the letter are:

"Our committee realizes the need for educating many of our people to the use of more pleasing color combinations for both interior and exterior residential use. We believe the distribution of prepared literature along this line not only would be a very real community service, but in connection with the concentrated and broad efforts being made to bring about such improvement, would greatly stimulate the use of paints.

"I, therefore, am inquiring if such material or suggestions covering the points mentioned are available through your organization or if you can suggest any other association through which they might be obtained.

"Our Committee feels that distribution of any literature or suggestions should be accompanied not only by color charts but should incorporate illustrations of houses showing some of the suggested combinations in color. None of this material, however, should carry advertising of any particular line and, therefore, can best be provided through an Association."

In a recent letter to INDUSTRIAL FINISHING, a manufacturer of finishing materials asked for a color index of popularity of colors for household use, and informed us his company had several requests for such an index.

INDUSTRIAL FINISHING will welcome further information or communications on this subject.

* * * *

A mailing card from a firm that supplies materials for porcelain enameling proclaims this significant message about color:

"When you improve your product, let us suggest some new colors and finishes. We have 3000 color oxides to choose from; these oxides are better. No charge for fired trials."

1932 Automobile Colors

The style leaders of the automotive industry (the custom body builders) are sponsoring a return to the gayer motor car colors which prevailed two years ago, according to a memorandum by Howard Ketcham, Director of the Duco Color Advisory Service. Black has been pretty thoroughly disregarded in this year's color offerings and, while there appears to be some evidence of uncertainty on the part of custom car builders as to just which hues to sponsor, judging from the almost equal number of entries in each of the six leading color families represented at the Salon, there is obviously no uncertainty extant so far as colors of low luminosity are concerned. Bright-colored cars abounded at this Salon and formed the backbone of the exhibit.

It is interesting to note the importance which these arbiters attach to gray as a motor car hue for 1932. Among the outstanding cars at the Salon finished in gray were a Brunn all-weather cabriolet, semi-collapsible, and a Dietrich convertible sedan. The striping accent on these jobs was silver. The soft opal characteristic of these grays imparted an additional air of subtle refinement and charm to the body lines. Other cars were in two tones of gray and striped in silver; two tones of green striped in silver; gray with green and vermilion striping; blue with gold striping; yellowish cream and black; maroon with bright vermilion stripe on black mouldings. Bright, clear Chester Hunt Red, Claret, Ruby, Wine and Carmine are colors that also appeared at this Salon.

In general the car colors were characterized by a greater degree of sophistication and artistry than has heretofore been attempted in automotive coloration.

Refinement of detail, more appropriate distribution of effectively selected accent colors, top materials, leather, etc., colored to harmonize with the body colors—all contribute to the effectiveness of the whole.

Classified Advertising

Advertisements under this heading 45 cents a line per insertion, minimum charge, $1.35. In estimating, calculate six words to one line, and add one additional line for heading. Use this department to obtain help, find positions, buy and sell equipment, dispose of manufacturing properties, etc.

FINISHING FOREMAN

Desires position; several years' experience as foreman with large firms. Understands modern methods, production, colors and finishes. Experienced on store, office and bank fixtures, antique and novelty furniture. Can handle any number of men. Go anywhere. Address IF-403, care Industrial Finishing.

POSITION WANTED

By thoroughly experienced man in the manufacture of lacquers, lacquer enamels in all colors and undercoatings for use on furniture and automobiles. Several years' experience in these lines. Can take complete charge and produce at once. No technical advice required. Address IF-414, care Industrial Finishing.

INDUSTRIAL SALESMAN WANTED

An old established manufacturer of industrial finishes wants to get in touch with a high-grade industrial salesman who can prove by past performance that he can get and hold the better furniture accounts in the High Point district. Will only consider a man with experience in this territory. He must be aggressive, honest and have a clean record. For such a man we have an excellent proposition. Give complete details in your reply. Our salesmen know of this advertisement. Address IF-409, care Industrial Finishing.

POSITION WANTED

Foreman finisher, 12 years' experience on high-grade furniture, radios, store and office fixtures. Can match colors. Will go anywhere. GEORGE A. ANDERSON, 3212 Rudd ave., Louisville, Ky.

SALESMEN WANTED

By manufacturer of complete line Stains, Fillers, Varnishes, Lacquers, etc. Territories other than New York and Pennsylvania open. Liberal commission basis. State age, references, experience, territory desired. Address IF-416, care Industrial Finishing.

WANTED—SALESMEN

For complete line of lacquers, stains, fillers, shellac and specialties. Industrial trade. Chicago and other important sections of the central Western territory. We offer exceptional opportunities to one or two men of experience and outstanding ability. THE STILLE-YOUNG CORPORATION, 1449 Fullerton ave., Chicago, Ill.

Permanent White

There are many occasions and places where something more than white paint is required, for it is sometimes required that a paint be not only white but permanently white—especially for surfaces that must be washable and coated with a paint that will not yellow with age. For such requirements, it is desirable to have zinc pigments in the material. Some firms specializing in the manufacture of antiseptic products prefer to use this kind of material both for their walls and machinery.—H. R.

Portable Mixer

There are many different kinds of mixing devices now employed for mixing finishing materials, but perhaps none are more popular than the portable type that can be clamped to the side of any tank, barrel or vat. Mixers of this type are in use in different sizes, varying from 1/10 to ½-h.p., and the prices of them, I understand, vary about as does the horsepower.—F. J. M.

The new ways the consumer wishes to buy products and the new convenient places in which the consumer wishes to buy them is causing packaging to play a large part in today's merchandising plans.